

# Living, Together

*Tools for Building an Intergenerational Community*

by  
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## AUTHOR'S DECLARATION

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

## ABSTRACT

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Population aging is poised to become the most critical global demographic shift of this century. Particularly in highly developed regions, the proportion of older adults is growing more quickly than other age groups as a result of rising life expectancy coupled with falling birth rates. Simultaneously, rural flight and the continuing growth of cities worldwide have resulted in more than half of the global population residing in urban areas for the first time in history. The intersection of these two patterns raises questions about how older adults fit into the existing urban narrative. In cities like Toronto, where the housing market is highly competitive and supply is focused on high-density housing targeted at young urban professionals, older adults are tacitly rejected from dense urban areas due to inadequate housing options. As they age and become unable to maintain a home independently, older adults become even more starved for choice and must turn to senior-specific housing. The mainstream condo market also fails to accommodate the growing number of Canadians who live in non-nuclear households, such as multi-generational families.

To sustain a continually aging, urbanizing, diversifying population, Toronto's housing market must aim to create more intergenerational communities, guided by a set of design principles that generate welcoming spaces for people of all ages and abilities. Using Toronto as a case study, this thesis deploys an intergenerational housing tool kit in the form of a mid-rise building located on the current site of a municipal surface parking lot in Kensington Market.

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## DEDICATION

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This thesis is dedicated to my grandmothers.



## TABLE OF CONTENTS

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II	AUTHOR'S DECLARATION
III	ABSTRACT
IV	ACKNOWLEDGMENTS
V	DEDICATION
VII	TABLE OF CONTENTS
VIII	LIST OF FIGURES
1	INTRODUCTION
PART ONE	4      AGING AND URBANIZATION
5	Aging, or the Story of Our Parts
7	The Four Ages
10	Aging Populations Worldwide
13	Aging and Urbanization
15	Toronto as Case Study
23	Market Divide
PART TWO	30     EXISTING HOUSING
PART THREE	64     INTERGENERATIONAL SOLUTIONS
66	Strengths and Needs in Old Age
67	Strengths and Needs in Youth
68	The Role of Adults In Between
68	Strategies for Intergenerational Exchange
85	Residents' Association
87	Flexible Units
108	Public-Private Buffer Space
119	Social Spaces
122	Accessibility and Universal Design
127	Communal Kitchen and Dining Room
130	Intergenerational Spaces and Programming
133	Outdoor Green Space
136	Revenue-generating Spaces
PART FOUR	142    DESIGN DEPLOYMENT
189	BIBLIOGRAPHY
193	APPENDIX

## LIST OF FIGURES

*All figures are produced by author unless otherwise noted.*

<i>Fig. 1.1</i>	6	Health over time before modern medicine vs. modern chronic illness vs. modern aging <i>Gawande, A., Being Mortal: Medicine and What Matters in the End</i> (2014).
<i>Fig. 1.2</i>	7	Young-Old book cover. <i>Simpson, D., Young-old: Urban Utopias of an Aging Society</i> (2015)
<i>Fig. 1.3</i>	8	Life stages before and after 1950. <i>Adapted from Simpson, D., Young-old: Urban Utopias of an Aging Society</i> (2015), 12.
<i>Fig. 1.4</i>	9	Age vs. time, money, and health.
<i>Fig. 1.5</i>	9	Ed Whitlock, then 85, completes the 2016 Toronto Waterfront Marathon in under four hours. <i>Retrieved from</i> <a href="https://www.nytimes.com/2016/12/28/sports/ed-whitlock-marathon-running.html">https://www.nytimes.com/2016/12/28/sports/ed-whitlock-marathon-running.html</a>
<i>Fig. 1.6</i>	10	Population aged 60 years or over in the world, 2000, 2015, 2030, and 2050. <i>From United Nations, World Population Ageing 2015</i> , (2015), 10.
<i>Fig. 1.7</i>	11	Percentage of population aged 60 years or over, by country, in 2000, 2015, and 2050. <i>Data from United Nations, World Population Ageing 2015</i> (2015), 122-126.
<i>Fig. 1.8</i>	13	World urban vs. rural populations, 1950 - 2050. <i>From United Nations, World Urbanization Prospects: The 2014 Revision</i> (2014), 7.
<i>Fig. 1.9</i>	14	Map of trips taken during <i>chunyun</i> in 2015. <i>Retrieved from</i> <a href="http://www.cnn.com/travel/article/china-spring-migration-chunyun/index.html">http://www.cnn.com/travel/article/china-spring-migration-chunyun/index.html</a> .
<i>Fig. 1.10</i>	14	Percentage urban by development group, selected periods, 1950-2050. <i>From United Nations, World Urbanization Prospects: The 2014 Revision</i> (2014), 7.
<i>Fig. 1.11</i>	16	Proportion of people aged 14 and under and 65 and older in Canada <i>Retrieved from:</i> <a href="http://www.macleans.ca/news/canada/what-the-census-tells-us-about-canadas-aging-population/">http://www.macleans.ca/news/canada/what-the-census-tells-us-about-canadas-aging-population/</a>
<i>Fig. 1.12</i>	17	Life expectancy for males and females vs. fertility in Canada over time <i>Data from</i> <a href="http://www.statcan.gc.ca/pub/11-630-x/11-630-x2014002-eng.htm">http://www.statcan.gc.ca/pub/11-630-x/11-630-x2014002-eng.htm</a>
<i>Fig. 1.13</i>	19	Canada population pyramids, 1936, 1956, 1976, 1996, 2016 <i>Data from</i> <a href="http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/pyramid/pyramid.cfm?geo1=46&amp;ctype=1">http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/pyramid/pyramid.cfm?geo1=46&amp;ctype=1</a>
<i>Fig. 1.14</i>	20	Breakdown of household composition in Canada, 2011 <i>Data from</i> <a href="http://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-312-x/98-312-x2011001-eng.cfm">http://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-312-x/98-312-x2011001-eng.cfm</a>
<i>Fig. 1.15</i>	21	Number of immigrants per year to Canada vs. percentage of immigrants within total population by year, proportion of immigrants to Canada by countries of origin by year <i>Retrieved from</i> <a href="https://www.statcan.gc.ca/pub/11-630-x/11-630-x2016006-eng.htm">https://www.statcan.gc.ca/pub/11-630-x/11-630-x2016006-eng.htm</a>

<i>Fig. 1.16</i>	23	Marketing for new Toronto condo developments <i>Retrieved from </i> <a href="http://torontocondoinsider.ca/axiom-condos/">http://torontocondoinsider.ca/axiom-condos/</a> <i>Retrieved from </i> <a href="http://nobucondosdeal.ca/">http://nobucondosdeal.ca/</a> <i>Retrieved from </i> <a href="http://siproperty.in/minto-yorkvillepark-ad/">http://siproperty.in/minto-yorkvillepark-ad/</a> <i>Retrieved from </i> <a href="http://www.bijanbarati.com/5959-Yonge-St-Condo-by-Ghods-Builders">http://www.bijanbarati.com/5959-Yonge-St-Condo-by-Ghods-Builders</a> <i>Retrieved from </i> <a href="http://garrisonpoint.ca/videos/?&amp;video=3-328">http://garrisonpoint.ca/videos/?&amp;video=3-328</a>
<i>Fig. 1.17</i>	24	Alternate adapted housing options <i>Retrieved from </i> <a href="https://torontolife.com/real-estate/houses/inside-complicated-world-home-co-ownership/">https://torontolife.com/real-estate/houses/inside-complicated-world-home-co-ownership/</a> <i>Retrieved from </i> <a href="http://www.thestar.com/life/homes/2009/02/07/condo_buyer_makes_his_a_double.html">www.thestar.com/life/homes/2009/02/07/condo_buyer_makes_his_a_double.html</a>
<i>Fig. 2.2</i>	33	Exploded axonometric of a typical new-construction high-rise residential building in Toronto
<i>Fig. 2.3</i>	34	Amenities commonly found in new-construction high-rise residential buildings in Toronto
<i>Fig. 2.4</i>	35	Diagram of a typical unit in a new-construction high-rise residential building in Toronto
<i>Fig. 2.5</i>	35	Unit plan and views of a typical one-bedroom plus den unit at Parade CityPlace in downtown Toronto <i>Images retrieved from </i> <a href="http://www.cityplace.ca/parade/index.asp">http://www.cityplace.ca/parade/index.asp</a>
<i>Fig. 2.6</i>	36	Exploded axonometric of a typical new-construction mid-rise residential building in Toronto <i>Photo retrieved from </i> <a href="https://www.planetizen.com/node/67761">https://www.planetizen.com/node/67761</a>
<i>Fig. 2.7</i>	37	Exploded axonometric of a typical single-family detached house in downtown Toronto
<i>Fig. 2.8</i>	38	Comparison of advantages and disadvantages of living in a single-family detached house
<i>Fig. 2.9</i>	38	Single-family detached house in Chinatown <i>Retrieved from </i> <a href="#">Google Maps</a>
<i>Fig. 2.10</i>	38	Single-family detached house in North York <i>Retrieved from </i> <a href="https://www.realtor.ca/">https://www.realtor.ca/</a>
<i>Fig. 2.11</i>	39	Comparison of advantages and disadvantages of living in a semi-detached house
<i>Fig. 2.12</i>	39	Semi-detached house in Trinity Bellwoods <i>Retrieved from </i> <a href="https://torontolife.com/real-estate/houses/house-of-the-week-248-roxton-road/">https://torontolife.com/real-estate/houses/house-of-the-week-248-roxton-road/</a>
<i>Fig. 2.13</i>	39	Semi-detached house in York <i>Retrieved from </i> <a href="https://www.realtor.ca/">https://www.realtor.ca/</a>
<i>Fig. 2.14</i>	40	Comparison of advantages and disadvantages of rowhouses and stacked townhouses <i>Photo retrieved from </i> <a href="#">Google Maps</a> <i>Photo retrieved from </i> <a href="http://urbantoronto.ca/database/projects/nero-condo">http://urbantoronto.ca/database/projects/nero-condo</a>
<i>Fig. 2.15</i>	41	Diagram of freehold ownership
<i>Fig. 2.16</i>	41	Freehold semi-detached house <i>Retrieved from </i> <a href="https://www.realtor.ca/">https://www.realtor.ca/</a>
<i>Fig. 2.17</i>	42	Freehold houses of different types for sale in Toronto <i>Retrieved from </i> <a href="https://www.kijiji.ca/v-house-for-sale/city-of-toronto/homes-for-sale-in-riverdale-toronto-ontario-899-000/1309933479?enableSearchNavigationFlag=true">https://www.kijiji.ca/v-house-for-sale/city-of-toronto/homes-for-sale-in-riverdale-toronto-ontario-899-000/1309933479?enableSearchNavigationFlag=true</a> <i>Retrieved from </i> <a href="https://www.remax.ca/on/toronto-real-estate/na-30-rollingwood-dr-na-crea_id18742106-lst/">https://www.remax.ca/on/toronto-real-estate/na-30-rollingwood-dr-na-crea_id18742106-lst/</a> <i>Retrieved from </i> <a href="https://www.realtor.ca/">https://www.realtor.ca/</a>
<i>Fig. 2.18</i>	43	Diagram of condominium ownership
<i>Fig. 2.19</i>	43	High-rise condominium in downtown Toronto <i>Retrieved from </i> <a href="https://condos.ca/toronto/pinnacle-centre-1-12-yonge-st/unit-2703-C4005880">https://condos.ca/toronto/pinnacle-centre-1-12-yonge-st/unit-2703-C4005880</a>

<i>Fig. 2.20</i>	44	Mid-rise and townhouse condominiums in downtown Toronto <i>Retrieved from </i> <a href="http://www.artcondos.ca/">http://www.artcondos.ca/</a> <i>Retrieved from </i> <a href="https://www.remax.ca/on/toronto-real-estate/10a-570-wellington-st-treb_c4013192-lst/">https://www.remax.ca/on/toronto-real-estate/10a-570-wellington-st-treb_c4013192-lst/</a>
<i>Fig. 2.21</i>	45	Diagram of rental tenancy
<i>Fig. 2.22</i>	45	High-rise rental units in downtown Toronto <i>Retrieved from </i> <a href="https://condos.ca/toronto/maple-leaf-square-55-65-bremner-blvd/unit-3609-C4008983">https://condos.ca/toronto/maple-leaf-square-55-65-bremner-blvd/unit-3609-C4008983</a>
<i>Fig. 2.23</i>	46	Mid-rise and semi-detached duplex rental properties in Toronto <i>Retrieved from </i> <a href="https://condos.ca/toronto/thompson-residences-621-629-king-st-w-38-stewart-st/unit-718-C4013444">https://condos.ca/toronto/thompson-residences-621-629-king-st-w-38-stewart-st/unit-718-C4013444</a> <i>Retrieved from </i> <a href="https://www.kijiji.ca/v-1-bedroom-den-apartments-condos/city-of-toronto/duplex-apartment-newly-renovated-leslieville-riverdale/1325201738?enableSearchNavigationFlag=true">https://www.kijiji.ca/v-1-bedroom-den-apartments-condos/city-of-toronto/duplex-apartment-newly-renovated-leslieville-riverdale/1325201738?enableSearchNavigationFlag=true</a>
<i>Fig. 2.24</i>	47	Diagram of co-operative housing tenancy
<i>Fig. 2.25</i>	47	Co-op housing in Vancouver <i>Retrieved from </i> <a href="http://www.chf.bc.ca/what-co-op-housing/find-a-co-op/lore-krill-co-op">http://www.chf.bc.ca/what-co-op-housing/find-a-co-op/lore-krill-co-op</a> <i>Retrieved from </i> <a href="http://henriquezpartners.com/work/lore-krill-housing-co-op/">http://henriquezpartners.com/work/lore-krill-housing-co-op/</a>
<i>Fig. 2.26</i>	48	Co-op housing in Toronto <i>Retrieved from </i> <a href="http://www.teeplearch.com/portfolio/60-richmond-east-housing-development/">http://www.teeplearch.com/portfolio/60-richmond-east-housing-development/</a> <i>Retrieved from </i> <a href="http://hazelburn.org/units/">http://hazelburn.org/units/</a> <i>Retrieved from </i> <a href="http://www.windmill-line.coop">http://www.windmill-line.coop</a>
<i>Fig. 2.27</i>	49	Diagram of co-housing ownership
<i>Fig. 2.28</i>	49	Co-housing community in Ottawa <i>Retrieved from </i> <a href="http://www.ottawalife.com/article/creating-a-community-cohousing-at-terra-firma">http://www.ottawalife.com/article/creating-a-community-cohousing-at-terra-firma</a>
<i>Fig. 2.29</i>	50	Co-housing communities in BC <i>Retrieved from </i> <a href="http://www.harbourside.ca/">http://www.harbourside.ca/</a> <i>Retrieved from </i> <a href="http://pacificgardens.ca/">http://pacificgardens.ca/</a>
<i>Fig. 2.31</i>	53	Independent living community structure diagram
<i>Fig. 2.32</i>	53	Architecture of Sun City, Arizona <i>Retrieved from </i> <a href="http://suncityaz.org/discover/cost-of-living-value/">http://suncityaz.org/discover/cost-of-living-value/</a> <i>Retrieved from </i> <a href="http://arizonahomesbydrew.com/sun-city-festival/">http://arizonahomesbydrew.com/sun-city-festival/</a>
<i>Fig. 2.33</i>	54	Diagram of a hypothetical house in an independent living community
<i>Fig. 2.34</i>	54	Activities at Sun City, Arizona <i>Retrieved from </i> <a href="http://www.slate.com/blogs/behold/2013/08/08/kendrick_brinson_sun_city_life_after_life_focuses_on_an_active_retirement.html">http://www.slate.com/blogs/behold/2013/08/08/kendrick_brinson_sun_city_life_after_life_focuses_on_an_active_retirement.html</a>
<i>Fig. 2.35</i>	56	Vintage Garden seniors' apartments in Scarborough <i>Retrieved from </i> <a href="http://www.cxtarchitects.com/projects/Residential/Canada/SJMC%20Phase%201/index.html">http://www.cxtarchitects.com/projects/Residential/Canada/SJMC%20Phase%201/index.html</a> <i>Retrieved from </i> <a href="https://www.youtube.com/watch?v=xmt16_vDcmQ">https://www.youtube.com/watch?v=xmt16_vDcmQ</a>
<i>Fig. 2.36</i>	58	Chartwell Avondale Retirement Residence in Toronto <i>Retrieved from </i> <a href="https://chartwell.com/retirement-homes/chartwell-avondale-retirement-residence">https://chartwell.com/retirement-homes/chartwell-avondale-retirement-residence</a>
<i>Fig. 2.37</i>	60	Chester Village nursing home in Toronto <i>Retrieved from </i> <a href="https://www.youtube.com/watch?v=V-eibOC_GdI">https://www.youtube.com/watch?v=V-eibOC_GdI</a>

<i>Fig. 2.38</i>	61	Common modifications to the home to accommodate home care <i>Retrieved from </i> <a href="http://wheelchairassistance.com/wheelchair-ramp/wheel-chair-ramp-blue-prints.php"><i>http://wheelchairassistance.com/wheelchair-ramp/wheel-chair-ramp-blue-prints.php</i></a> <i>Retrieved from </i> <a href="http://www.ezlifts.com/accessories/accessory_details.cfm?AccessoryID=47"><i>http://www.ezlifts.com/accessories/accessory_details.cfm?AccessoryID=47</i></a> <i>Retrieved from </i> <a href="http://modifiedaccess.com/projects/roll-in-shower-2/"><i>http://modifiedaccess.com/projects/roll-in-shower-2/</i></a> <i>Retrieved from </i> <a href="https://www.howdens.com/kitchen-collection/inclusive-kitchens/"><i>https://www.howdens.com/kitchen-collection/inclusive-kitchens/</i></a>
<i>Fig. 3.2</i>	72	Benefits of grandfamilies for children <i>Retrieved from </i> <a href="https://dl2.pushbulletusercontent.com/uhDY7UgdGYnOod6G7VFkdKnuzE3yALmr/17-InLovingArms-Grandfamilies.pdf"><i>https://dl2.pushbulletusercontent.com/uhDY7UgdGYnOod6G7VFkdKnuzE3yALmr/17-InLovingArms-Grandfamilies.pdf</i></a>
<i>Fig. 3.4</i>	75	Kipling Acres, Montgomery Sisam, view of courtyard from above <i>Retrieved from </i> <a href="http://www.montgomerysisam.com/projects/kipling-acres-long-term-care-home"><i>http://www.montgomerysisam.com/projects/kipling-acres-long-term-care-home</i></a>
<i>Fig. 3.5</i>	75	Kipling Acres, Montgomery Sisam, view of interior lounge overlooking courtyard <i>Retrieved from </i> <a href="http://www.montgomerysisam.com/projects/kipling-acres-long-term-care-home"><i>http://www.montgomerysisam.com/projects/kipling-acres-long-term-care-home</i></a>
<i>Fig. 3.6</i>	76	Young and old dance together during Move and Groove session at Kipling Acres <i>Retrieved from </i> <a href="https://www.thestar.com/news/gta/2016/02/09/magic-abounds-when-daycare-seniors-home-share-roof.html"><i>https://www.thestar.com/news/gta/2016/02/09/magic-abounds-when-daycare-seniors-home-share-roof.html</i></a>
<i>Fig. 3.7</i>	76	Older adult learning to use a smartphone from a teenager at Two Harbors <i>Retrieved from </i> <a href="https://medium.com/@GensUnited/two-harbors-mn-2017-best-intergenerational-community-award-winner-bee2bcfb690e"><i>https://medium.com/@GensUnited/two-harbors-mn-2017-best-intergenerational-community-award-winner-bee2bcfb690e</i></a>
<i>Fig. 3.8</i>	77	Comparison of children's and older adults' needs in intergenerational shared space
<i>Fig. 3.9</i>	80	Common limitations to the way older adults can experience space
<i>Fig. 3.10</i>	81	Kankanmori Collective House in Tokyo, Japan <i>Retrieved from </i> <a href="https://kaigo.homes.co.jp/facility/detail/f=31417/"><i>https://kaigo.homes.co.jp/facility/detail/f=31417/</i></a>
<i>Fig. 3.11</i>	82	Kankanmori Collective House in Tokyo, Japan <i>Retrieved from </i> <a href="https://archiforum.exblog.jp/10351242/"><i>https://archiforum.exblog.jp/10351242/</i></a> <i>From </i> <a href="#"><i>Koyabe, Ikuko. Daisan No Sumai: Korekutibu Haujingu No Subete. Tokyo: Ekusunarejji, 2012.</i></a>
<i>Fig. 3.12</i>	83	Humanitas Seniors Home in Deventer, Netherlands <i>Retrieved from </i> <a href="https://www.youtube.com/watch?time_continue=11&amp;v=xQRywo5gYo4"><i>https://www.youtube.com/watch?time_continue=11&amp;v=xQRywo5gYo4</i></a> <i>Retrieved from </i> <a href="https://www.destentor.nl/deventer/studenten-en-ouderen-onder-eneacute-eneacute-n-dak-oma-praat-nu-over-sushi-en-bierspelletjes~a0edde8d/"><i>https://www.destentor.nl/deventer/studenten-en-ouderen-onder-eneacute-eneacute-n-dak-oma-praat-nu-over-sushi-en-bierspelletjes~a0edde8d/</i></a> <i>Retrieved from </i> <a href="https://www.youtube.com/watch?v=THSbuHUZGxY&amp;autoplay=0&amp;loop=0&amp;controls=1&amp;showinfo=0"><i>https://www.youtube.com/watch?v=THSbuHUZGxY&amp;autoplay=0&amp;loop=0&amp;controls=1&amp;showinfo=0</i></a> <i>Retrieved from </i> <a href="https://www.woonzorg.nl/humanitas_deventer"><i>https://www.woonzorg.nl/humanitas_deventer</i></a>
<i>Fig. 3.13</i>	84	Diagram of nine elements of intergenerational housing design
<i>Fig. 3.14</i>	86	Community land trust structure
<i>Fig. 3.15</i>	86	Residents conduct a design charrette for Delaware Street Commons co-housing project, Kansas <i>Retrieved from </i> <a href="https://commons.wikimedia.org/wiki/File:Community_Land_Trusts.png"><i>https://commons.wikimedia.org/wiki/File:Community_Land_Trusts.png</i></a> <i>Retrieved from </i> <a href="http://www.delaware-street.com/about_project.php"><i>http://www.delaware-street.com/about_project.php</i></a>
<i>Fig. 3.16</i>	86	Residents attend a co-housing conference <i>Retrieved from </i> <a href="http://www.cohousing.org/node/5447"><i>http://www.cohousing.org/node/5447</i></a>
<i>Fig. 3.17</i>	86	Community members participate in Parkdale Community Land Trust's Annual General Meeting, 2017 <i>Retrieved from </i> <a href="http://www.pnlt.ca/"><i>http://www.pnlt.ca/</i></a>
<i>Fig. 3.18</i>	87	Mies van der Rohe Apartment at Weissenhof Estate, exterior perspective <i>Retrieved from </i> <a href="http://casa-abierta.com/post.php?t=58bd51080819b"><i>http://casa-abierta.com/post.php?t=58bd51080819b</i></a>

<i>Fig. 3.19</i>	88	Mies van der Rohe Apartment at Weissenhof Estate, plans and elevation <i>Retrieved from</i> <a href="http://tallerdahlorcha.blogspot.ca/2010/07/mies-van-der-rohe-exposicion-en.html">http://tallerdahlorcha.blogspot.ca/2010/07/mies-van-der-rohe-exposicion-en.html</a>
<i>Fig. 3.20</i>	88	Mies van der Rohe Apartment at Weissenhof Estate, unit layout option plans <i>Retrieved from</i> <a href="http://casa-abierta.com/post.php?t=58bd51080819b">http://casa-abierta.com/post.php?t=58bd51080819b</a>
<i>Fig. 3.21</i>	89	Housing Block Erasmuslaan, Gerrit Rietveld, exterior perspective
<i>Fig. 3.22</i>	89	Housing Block Erasmuslaan, Gerrit Rietveld, interior perspective
<i>Fig. 3.23</i>	89	Housing Block Erasmuslaan, Gerrit Rietveld, plans <i>Retrieved from</i> <a href="http://www.galinsky.com/buildings/erasmuslaan9/">http://www.galinsky.com/buildings/erasmuslaan9/</a> <i>Retrieved from</i> <a href="https://www.mimoa.eu/projects/Netherlands/Utrecht/Erasmuslaan/">https://www.mimoa.eu/projects/Netherlands/Utrecht/Erasmuslaan/</a> <i>Retrieved from</i> Till, <i>Flexible Housing</i> , 62
<i>Fig. 3.28</i>	90	Apartamento Ma, Angel Rico, all-in-one unit in various configurations
<i>Fig. 3.24</i>	90	Square L-Type System, Johannes Uan den Broek and Jacob Bakema, plans
<i>Fig. 3.25</i>	90	Habitat 67, Moshe Safdie, exterior perspective
<i>Fig. 3.26</i>	90	(W)ego Installation, MVRDV, front perspective
<i>Fig. 3.27</i>	90	Smart House, architectsAlliance, view of fold-down bed <i>From</i> Till, <i>Flexible Housing</i> , 76 <i>Retrieved from</i> <a href="http://www.habitat67.com/en/homage/">http://www.habitat67.com/en/homage/</a> <i>Retrieved from</i> <a href="https://www.mvrdrv.nl/en/news/w-ego-installation-opens-to-the-public-tomorrow-at-dutch-design-week">https://www.mvrdrv.nl/en/news/w-ego-installation-opens-to-the-public-tomorrow-at-dutch-design-week</a> <i>Retrieved from</i> <a href="http://smarthousetoronto.com/img/smart-furniture-clei-bed.jpg">http://smarthousetoronto.com/img/smart-furniture-clei-bed.jpg</a>
<i>Fig. 3.30</i>	93	Condo bathtub used as stroller storage
<i>Fig. 3.29</i>	93	Condo bathtub converted into crib
<i>Fig. 3.31</i>	93	Under sink storage converted into closet for baby <i>Retrieved from</i> <a href="http://www.cbc.ca/news/canada/toronto/condo-hacking-spaces-toronto-1.4131413">http://www.cbc.ca/news/canada/toronto/condo-hacking-spaces-toronto-1.4131413</a>
<i>Fig. 3.37</i>	102	Protocol decision tree to be executed when units are vacated
<i>Fig. 3.41</i>	108	Entire kitchens for sale on Italian marketplace website <i>Retrieved from</i> <a href="http://roma.bakeca.it/dettaglio/cucina-elettrodomestici/roma-cucina-in-porfette-qugk150097296">http://roma.bakeca.it/dettaglio/cucina-elettrodomestici/roma-cucina-in-porfette-qugk150097296</a> <i>Retrieved from</i> <a href="http://roma.bakeca.it/dettaglio/cucina-elettrodomestici/cucina-brava-expo-lube-kg6x139614214">http://roma.bakeca.it/dettaglio/cucina-elettrodomestici/cucina-brava-expo-lube-kg6x139614214</a>
<i>Fig. 3.49</i>	119	Merida Youth Center <i>Retrieved from</i> <a href="http://www.landezine.com/index.php/2011/09/youth-factory-landscape-architecture/">http://www.landezine.com/index.php/2011/09/youth-factory-landscape-architecture/</a>
<i>Fig. 3.50</i>	119	Merida Youth Center covered biking and skateboarding area
<i>Fig. 3.51</i>	120	The Met Steps, New York City <i>Retrieved from</i> <a href="https://nycpix.wordpress.com/tag/met-steps/">https://nycpix.wordpress.com/tag/met-steps/</a>
<i>Fig. 3.52</i>	121	Social spaces for Korean seniors in Flushing, New York
<i>Fig. 3.53</i>	121	Seniors practicing Tai Chi before opening hours at Woodside Square Mall in East Toronto <i>Retrieved from</i> <a href="http://www.woodsidesquare.com/community/">http://www.woodsidesquare.com/community/</a> <i>Retrieved from</i> <a href="https://www.nytimes.com/2014/01/15/nyregion/fighting-a-mcdonalds-for-the-right-to-sit-and-sit-and-sit.html">https://www.nytimes.com/2014/01/15/nyregion/fighting-a-mcdonalds-for-the-right-to-sit-and-sit-and-sit.html</a>
<i>Fig. 3.54</i>	121	Seniors playing cards on makeshift furniture in Portsmouth Square Park in San Francisco's Chinatown <a href="https://www.nytimes.com/2014/01/29/arts/design/lessons-from-mcdonalds-clash-with-older-koreans.html">https://www.nytimes.com/2014/01/29/arts/design/lessons-from-mcdonalds-clash-with-older-koreans.html</a> <i>Retrieved from</i> <a href="https://www.youtube.com/watch?v=0pQZ_4NQA_A">https://www.youtube.com/watch?v=0pQZ_4NQA_A</a>

<i>Fig. 3.57</i>	122	High contrast finishes <i>Retrieved from https://www.quadrangle.ca/</i>
<i>Fig. 3.58</i>	122	Roll-in pool <i>Retrieved from http://algarvewheelchairholidays.com/</i>
<i>Fig. 3.55</i>	122	Apple campus glass
<i>Fig. 3.56</i>	122	Entrance ramp feature
<i>Fig. 3.59</i>	122	Glass decals <i>Retrieved from https://www.digitaltrends.com/home/apple-park-employees-walking-into-glass-walls/</i> <i>Retrieved from https://www.quadrangle.ca/</i> <i>Retrieved from https://www.quadrangle.ca/</i>
<i>Fig. 3.60</i>	123	Inclusive and exclusive design tactics in residential design <i>Retrieved from https://www.remax.ca/on/toronto-real-estate/na-382-crawford-st-na-crea_id19047113-lst/</i> <i>Retrieved from https://www.remax.ca/on/toronto-real-estate/na-117-glen-park-ave-treb_c3959325-lst/</i> <i>Retrieved from https://www.remax.ca/on/toronto-real-estate/na-66-dunblaine-ave-treb_c3985088-lst/</i> <i>Retrieved from https://www.remax.ca/on/toronto-real-estate/na-117-glen-park-ave-treb_c3959325-lst/</i> <i>Retrieved from http://torontomomnow.com/2016/the-best-public-libraries-in-toronto-for-kids/</i> <i>Retrieved from https://torontoist.com/2016/07/why-are-young-torontonians-moving-into-microcondos/</i> <i>Retrieved from http://www.cpldesigninteriors.com/metro-toronto-condominium-corporation-1385-109-front-street-toronto/</i> <i>Retrieved from http://www.dashpropertymanagement.com/cmsb/uploads/official-residents-guide.pdf</i> <i>Retrieved from https://images.thestar.com/content/dam/thestar/life/homes/2017/07/01/ontario-court-rules-homeowners-are-not-obligated-to-pay-park-maintenance-fees/aaron-wychwood-park.jpg.size-custom-crop.0x650.jpg</i> <i>Retrieved from http://www.insidercondos.com/Downtown-55-Condos</i>
<i>Fig. 3.61</i>	125	Accessibility features in condo design <i>Retrieved from https://www.thestar.com/life/homes/2017/10/07/daniels-corp-opens-doors-for-greater-accessibility.html</i> <i>Retrieved from https://www.richelieu.com/us/en/category/kitchen-and-bathroom-accessories/kitchen/upper-cabinets-storage-systems/pull-down-mechanism/pull-down-cabinet-system/1189353/sku-17450100</i>
<i>Fig. 3.62</i>	126	Inaccessible features common in condo design <i>Retrieved from https://www.tridel.com/tenyork/</i> <i>Retrieved from https://condonow.com/Art-Condos/Floor-Plan-Price/e5</i> <i>Retrieved from http://www.lambdevcorp.com/kingcharlotte.php</i> <i>Retrieved from https://www.tridel.com/aquabella/image-gallery/</i> <i>Retrieved from https://www.tridel.com/auberge/?utm_source=tridelcom&amp;utm_medium=allcommunities&amp;utm_campaign=auberge</i> <i>Retrieved from http://dylandonovan.ca/listing/180-University-Ave-3808/</i> <i>Retrieved from http://www.lambdevcorp.com/james.php</i>
<i>Fig. 3.63</i>	128	Luke's Underground Supper Table (L.U.S.T), a secret supper club in Toronto
<i>Fig. 3.66</i>	128	The Depanneur supper club in Toronto
<i>Fig. 3.64</i>	128	Kitchen24 Food Incubator <i>Retrieved from http://alimentaryinitiatives.com/hot-kitchens-to-rent/</i> <i>Retrieved from http://www.lukechef.com/photos/</i> <i>Retrieved from https://thedepanneur.ca/supper-club/gallery/</i>

<i>Fig. 3.65</i>	128	Community meals at the Stop <i>Retrieved from </i> <a href="https://wearefromthefarm.wordpress.com/2014/12/19/community-spotlight-the-stop-cfc-drop-in-program/">https://wearefromthefarm.wordpress.com/2014/12/19/community-spotlight-the-stop-cfc-drop-in-program/</a>
<i>Fig. 3.67</i>	129	Dining and kitchen amenities at the Yorkville Park condo in Toronto
<i>Fig. 3.68</i>	129	Dining and kitchen amenities at the Bianca condo in Toronto
<i>Fig. 3.69</i>	129	Empire condo dining room and bar <i>Retrieved from </i> <a href="http://midtown.empirecommunities.com/">http://midtown.empirecommunities.com/</a> <i>Retrieved from </i> <a href="https://www.minto.com/gta/Toronto-new-condos/Minto-Yorkville-Park/Amenities~1570.html">https://www.minto.com/gta/Toronto-new-condos/Minto-Yorkville-Park/Amenities~1570.html</a> <i>Retrieved from </i> <a href="https://www.tridel.com/bianca/">https://www.tridel.com/bianca/</a>
<i>Fig. 3.70</i>	129	Dining room and bar at Chaz Yorkville <i>Retrieved from </i> <a href="https://www.buzzbuzzhome.com/ca/chazyorkville#image-A11-9">https://www.buzzbuzzhome.com/ca/chazyorkville#image-A11-9</a>
<i>Fig. 3.71</i>	131	Excerpts from arki_lab's guide on intergenerational urban space
<i>Fig. 3.72</i>	131	Hesston Community Child Care in Kansas <i>Retrieved from </i> <a href="http://www.arkilab.dk/a-short-guide-to-how-to-design-intergenerational-urban-spaces/">http://www.arkilab.dk/a-short-guide-to-how-to-design-intergenerational-urban-spaces/</a> <i>Retrieved from </i> <a href="https://vtechworks.lib.vt.edu/bitstream/handle/10919/79848/Norouzi_N_D_2016.pdf?sequence=2">https://vtechworks.lib.vt.edu/bitstream/handle/10919/79848/Norouzi_N_D_2016.pdf?sequence=2</a> <i>Retrieved from </i> <a href="http://hesstonchildcare.org/programs/intergenerational/toddler/">http://hesstonchildcare.org/programs/intergenerational/toddler/</a>
<i>Fig. 3.73</i>	132	Enoteca Maria, restaurant staffed by a rotating roster of older women from a variety of cultural backgrounds
<i>Fig. 3.74</i>	132	Intergenerational activities at ONEgeneration Adult Daycare and Childcare in California
<i>Fig. 3.75</i>	132	Intergenerational room at Generations Crossing, Virginia <i>Retrieved from </i> <a href="http://www.wbur.org/onpoint/2015/04/07/enoteca-maria-nonnas-house-italian-cooking">http://www.wbur.org/onpoint/2015/04/07/enoteca-maria-nonnas-house-italian-cooking</a> <i>Retrieved from </i> <a href="http://time.com/5071129/children-seniors-daycare-onegeneration/">http://time.com/5071129/children-seniors-daycare-onegeneration/</a> <i>Retrieved from </i> <a href="https://vtechworks.lib.vt.edu/bitstream/handle/10919/79848/Norouzi_N_D_2016.pdf?sequence=2">https://vtechworks.lib.vt.edu/bitstream/handle/10919/79848/Norouzi_N_D_2016.pdf?sequence=2</a> <i>Retrieved from </i> <a href="https://www.youtube.com/watch?time_continue=30&amp;v=F6ncyIwOHZI">https://www.youtube.com/watch?time_continue=30&amp;v=F6ncyIwOHZI</a> <i>Retrieved from </i> <a href="https://www.instagram.com/onegenerationcares/">https://www.instagram.com/onegenerationcares/</a>
<i>Fig. 3.76</i>	134	Vegetable plots at The Stop's Green Barn in Toronto
<i>Fig. 3.79</i>	134	Wheelchair-accessible garden at Fauquier Health Rehabilitation and Nursing Center, Virginia
<i>Fig. 3.78</i>	134	Courtyard at Elie Tahari offices, New Jersey <i>Retrieved from </i> <a href="http://www.flrnc.org/our-facility">http://www.flrnc.org/our-facility</a> <i>Retrieved from </i> <a href="http://www.landezine.com/index.php/2011/02/tahari-courtyards-by-michael-van-valkenburgh-associates/">http://www.landezine.com/index.php/2011/02/tahari-courtyards-by-michael-van-valkenburgh-associates/</a> <i>Retrieved from </i> <a href="http://thestop.org/programs/fight-hunger/urban-agriculture/global-roots-garden/">http://thestop.org/programs/fight-hunger/urban-agriculture/global-roots-garden/</a>
<i>Fig. 3.77</i>	134	Dementia garden at Park View Care Home, Ipswich <i>Retrieved from </i> <a href="https://www.aralia.org.uk/portfolio/park-view-care-home-ipswich/">https://www.aralia.org.uk/portfolio/park-view-care-home-ipswich/</a>
<i>Fig. 3.83</i>	135	Paley Park, New York City
<i>Fig. 3.80</i>	135	WeWork Toronto, Richmond Street location
<i>Fig. 3.84</i>	135	Children playing in Crown Fountain, Chicago
<i>Fig. 3.81</i>	135	WeWork Toronto, Richmond Street location
<i>Fig. 3.85</i>	135	Various playgrounds designed by NIPPayage in Quebec

<i>Fig. 3.82</i>	135	WeWork Toronto, Richmond Street location <i>Retrieved from </i> <a href="https://www.totallandscapecare.com/landscaping-blog/paley-park/">https://www.totallandscapecare.com/landscaping-blog/paley-park/</a> <i>Retrieved from </i> <a href="http://www.minitime.com/trip-tips/Two-Days-in-Chicago-with-Kids-article">http://www.minitime.com/trip-tips/Two-Days-in-Chicago-with-Kids-article</a> <i>Retrieved from </i> <a href="http://www.landezine.com/index.php/2011/02/playgrounds-and-schoolyards-by-nippysage/">http://www.landezine.com/index.php/2011/02/playgrounds-and-schoolyards-by-nippysage/</a>
<i>Fig. 3.86</i>	135	Zuccotti Park, New York City <i>Retrieved from </i> <a href="https://kudago.com/new-york/event/zuccotti-park-holiday-lighting/">https://kudago.com/new-york/event/zuccotti-park-holiday-lighting/</a>
<i>Fig. 3.87</i>	137	WeWork Toronto, Richmond Street location
<i>Fig. 3.88</i>	137	Volunteer cafe in Bukit Batok, Singapore <i>Retrieved from </i> <a href="https://www.wework.com/buildings/richmond-street-west--toronto">https://www.wework.com/buildings/richmond-street-west--toronto</a> <i>Retrieved from </i> <a href="https://www.youtube.com/watch?v=4NBgG8C3t2w">https://www.youtube.com/watch?v=4NBgG8C3t2w</a>
<i>Fig. 3.89</i>	138	Baldwin Pre-School Centre in Aurora, Ontario
<i>Fig. 3.90</i>	138	Market Kitchen event space above St. Lawrence Market, Toronto
<i>Fig. 3.91</i>	138	889 Yoga, Toronto <i>Retrieved from </i> <a href="http://enroute.aircanada.com/en/articles/ask-a-hotel-concierge-july-2014">http://enroute.aircanada.com/en/articles/ask-a-hotel-concierge-july-2014</a> <i>Retrieved from </i> <a href="https://www.thestar.com/news/2009/05/20/green_kitchen_is_looking_up.html">https://www.thestar.com/news/2009/05/20/green_kitchen_is_looking_up.html</a> <i>Retrieved from </i> <a href="https://toronto.ctvnews.ca/number-of-affordable-daycare-spots-shrinking-as-fees-in-gta-tops-canada-1.2096112">https://toronto.ctvnews.ca/number-of-affordable-daycare-spots-shrinking-as-fees-in-gta-tops-canada-1.2096112</a> <i>Retrieved from </i> <a href="https://www.themarketkitchen.ca/rentals.html">https://www.themarketkitchen.ca/rentals.html</a>
<i>Fig. 3.92</i>	138	Ji Hong Tai Chi, Mississauga <i>Retrieved from </i> <a href="https://www.taichi.ca/tai-chi-for-physical-health-taiji-quan-qigong-biomechanics-chronic-pain-balance-posture-vital-energy-mississauga-brampton-streetsville-cooksville-port-credit-vaughan-maple-etobicoke-toronto/people-with-parkinsons-practice-tai-chi/">https://www.taichi.ca/tai-chi-for-physical-health-taiji-quan-qigong-biomechanics-chronic-pain-balance-posture-vital-energy-mississauga-brampton-streetsville-cooksville-port-credit-vaughan-maple-etobicoke-toronto/people-with-parkinsons-practice-tai-chi/</a> <i>Retrieved from </i> <a href="http://blog.berkeleyevents.com/tag/berkeley-catering/page/2/">http://blog.berkeleyevents.com/tag/berkeley-catering/page/2/</a>
<i>Fig. 4.3</i>	147	Site context
<i>Fig. 4.4</i>	148	Possible unit arrangements within site boundary
<i>Fig. 4.20</i>	176	Juliet balcony axonometric view
<i>Fig. 4.21</i>	176	View of library and daycare
<i>Fig. 99.1</i>	193	View of courtyard from hallway
<i>Fig. 99.2</i>	193	View toward courtyard from unit interior
<i>Fig. 99.3</i>	194	View of activity room
<i>Fig. 99.4</i>	194	View of workshop
<i>Fig. 99.5</i>	195	Exterior view
<i>Fig. 99.6</i>	195	Site plan
<i>Fig. 99.7</i>	196	Site aerial
<i>Fig. 99.8</i>	196	Street elevation
<i>Fig. 99.9</i>	196	Site aerial
<i>Fig. 99.11</i>	197	Second floor plan
<i>Fig. 99.10</i>	197	Ground floor plan
<i>Fig. 99.12</i>	198	Elevations

## INTRODUCTION

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*Living, Together* is a proposal for intergenerational community living in dense, urban areas in response to imminent global demographic changes. Two primary trends have been established worldwide: population aging and urbanization. As people live longer into old age and rural communities move to metropolitan areas to pursue employment opportunities, urban populations swell and existing housing stock becomes inadequate. High-density, low-cost construction becomes the norm, manifesting in tall condominium towers in prime locations filled with compact dwelling units. Meanwhile, demand for single family homes continues to rise while supply stagnates, causing housing prices to skyrocket. A divide emerges between high- and low-density housing that extends beyond typology, segregating people by household composition, socio-economic status, and age. This thesis posits that this model of isolation is unsustainable; the continued progress of urban societies relies on the interdependence and cooperation of citizens of all ages, encouraged by the formation of intergenerational housing in central downtown areas. This thesis presents a set of design principles crucial to forming an intergenerational community and deploys them at two scales: a detached house and a six-storey mid-rise building.

The first section investigates the intersection of population aging, urbanization, and a number of other societal shifts in Toronto and in Canada as a whole as they apply to the housing market. This section lays out the social and economic challenges facing Canada in the future as the population composition continues to change rapidly while infrastructure, housing, and other systems struggle to keep up. Availability, affordability, and diversity are the main deficiencies homeowners must contend with in Toronto's residential market.

The second section examines the prevailing building types and ownership models that exists in the residential architecture of Toronto, highlighting the major advantages and drawbacks of each. While many households can find the appropriate combination of type and ownership to match their needs, many older adults find themselves under-served by the mainstream market and must turn to seniors-specific housing. This section also looks at the options currently available to older adults at a range of

levels of care and autonomy. What becomes clear through this analysis is that current residential architecture encumbers the integration of older adults into society at large, especially as they enter old age when they are siloed for their physical well-being at the expense of their psychological and social needs.

The third section delves into the nascent concept of intergenerational exchange, exploring existing applications in both architectural and non-architectural forms. Lessons from these precedents are distilled into a set of nine main design principles that constitute a framework upon which an intergenerational community can be built. These design principles benefit everyone, not only the elderly, including many groups currently neglected by residential architecture like children, pets, and people with disabilities.

The final section consists of two design proposals at different scales, both located in the eclectic Kensington Market in downtown Toronto, in which the proposed framework is deployed in a specific architectural setting. The first proposal considers how intergenerational design principles might be applied to a detached house comprised of three sub-units with variable access between them to accommodate a range of family configurations. The second proposal uses the mid-rise residential type to bring gentle density to an existing municipal surface parking lot, addressing the need for more housing in prime locations while respecting the quieter residential character of the area. Flexible living units arranged around a central courtyard can be combined and subdivided into limitless configurations that accommodate the unique needs of each household, while ample amenity and social spaces that are open to the community integrate the project into the neighbourhood and encourage intergenerational exchange in the greater Kensington Market community.

This aim of this thesis is not to replace established models of living or housing typologies, nor to resolve all of the challenges facing aging urban populations worldwide. Each form of housing mentioned in this thesis has its place and serves its purpose for certain people, and must continue to exist. The objective of this thesis is to highlight gaps in the current residential design repertoire and suggest one solution that may adapt more sensitively to the future of our cities.





## AGING AND URBANIZATION

## AGING AND URBANIZATION

*Aging, Urbanization, and Changing Social Attitudes*

---

Life is defined by aging. From the moment we are born, our bodies constantly evolve into different states marked by physiological maturation and new societal expectations. It is something we look forward to as children, always yearning to be taller or to be taken more seriously by adults, yet — seemingly overnight — aging becomes undesirable, manifesting in deteriorating health and eventually death. This process has remained largely the same for much of civilization until the beginning of the 20<sup>th</sup> century, when rapid advances in modern medicine extended life expectancy dramatically. However, while our collective attention has been focused on eradicating disease and postponing death, we have neglected to effectively study and address the challenges that come with living deep into old age. Starting in the middle of the 20<sup>th</sup> century, the stages of a person's life could no longer be described as youth, adulthood, and old age, where old age implied poor health and a loss of independence. Instead, the unpredictability of our state of health grows with age and the lifestyles of people of similar age can vary wildly. Particularly in the developed world, where fertility is dropping concurrently and urbanization is on the rise, questions emerge regarding housing strategies in urban areas. Canada, specifically the Toronto area, serves as an engaging point of study by virtue of the confluence of relevant prevailing factors. Aging populations and densification of metropolitan Toronto coincide with high levels of immigration, changing household composition, and an overheating housing market to suggest a dire need for the re-evaluation of current residential architecture strategies.

*Aging, or the Story of Our Parts*

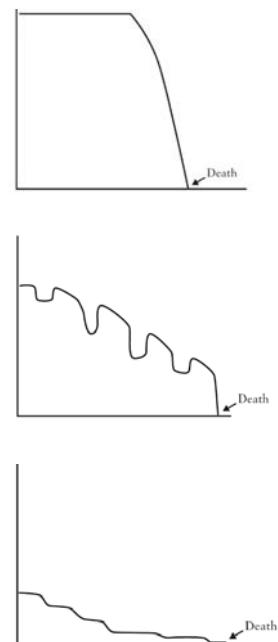
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The act of aging changed dramatically during the 19th and 20th centuries due to significant advances in medicine, public health, and infrastructure, including the establishment of the World Health Organization (WHO) in 1948, the widespread use of vaccines, the invention of antibiotics, and greater emphasis on scientific research and study. Breakthroughs in technology and methodology allowed doctors to save and extend countless lives that would have ended due to previously fatal diseases like smallpox,

which was eradicated in Europe and North America in the 1950s.<sup>01a</sup> With improved medicine, a greater number of children could reach adulthood and even old age. While this was a victory for the field of medicine and civilization overall, extended lifespans also brought certain ramifications.

In his book *Being Mortal: Medicine and What Matters in the End*, American surgeon and writer Atul Gawande examines the effect of medical advances on the process of aging with regard to sociological, physiological, psychological, and infrastructural impact. He argues that the process of aging in the modern world is overlooked by both the medical profession and society as a whole, deserving of more research and care, while the act of delaying death receives abundant attention.<sup>02</sup> Interlacing personal anecdotes, historical fact, statistics, and innovative precedents in the field of gerontology, Gawande challenges the standard within medical practice that prioritizes quantity of life at the cost of quality. Comparing the trajectory of a person's health in three states (*Fig. 1.1*) — before modern medicine, in chronic illness typical of modern day, and in average health of modern day — Gawande describes dying of old age in the 21<sup>st</sup> century as a "slow fade"<sup>03</sup>. Before modern medicine, in the absence of complex surgeries, MRIs, and regular checkups, one might have suddenly died of a heart attack or stroke, or at the culmination of years of an asymptomatic illness. Now, with modern medicine, even someone with a chronic illness can be pulled from the precipice multiple times, delaying death but never completely returning to the same level of health. Dying of old age, then, is a drawn-out decline in which the person experiences a series of small dips in health—perhaps a torn knee ligament in their twenties, a clogged artery in their sixties—and eventually dies not of a singular, catastrophic event, but of an entire system slowly falling apart. As Gawande states, "The story of aging is the story of our parts."<sup>04</sup> Teeth wear away, gums recede, arthritis and tremors kick in, soft tissue hardens, blood pressure rises, muscle loses mass, bones lose density, joints collapse, dexterity is lost, bowels stop moving. Our bodies are made of dozens of systems comprised of hundreds of moving and interlocking parts with redundancies built in, like any other complex system, so that one defective cog will not compromise the entire machine. However, the overall system will necessarily fail eventually:

Nonetheless, as the defects in a complex system increase, the time comes when just one more defect is enough to impair the whole, resulting in the condition known as frailty. It happens to power plants, cars, and large organizations. And it happens to us: eventually, one too many joints are damaged, one too many arteries calcify. There are no more backups. We wear down until we can't wear down anymore.<sup>05</sup>



*Fig. 1.1 Health over time before modern medicine vs. modern chronic illness vs. modern aging*

Before modern medicine, death would often hit suddenly, with minimal downturn in health. Now, in cases of chronic illness, a person may suddenly decline but be yanked back to relative health but never making a total recovery. Even in good health, a person aging is experiencing a slow downward decline as they age.

While this gradual form of aging is common to most people living in the 21<sup>st</sup> century, doctors still cannot predict with much certainty when—or even why, specifically—our bodies will take these downward turns.<sup>06</sup> Some will decline due to old age in a steady manner starting at 50 and ending at 90; others will experience chronic stumbles in health from the time they are born until they die at 60; some will even continue to experience sudden illness, much like people did before modern medicine, and be unable to access medical care in time, dying at a young age. The unpredictable nature of modern-day aging requires that we reconsider our perceptions and expectations of older people.

#### The Four Ages

The life cycle of the average person could once be described in three periods, or ages: childhood, adulthood, and old age. While the borders between them may be blurry or even span multiple years of life, we could intuitively determine where these distinctions lie by looking at the people around us. A small boy holding his mother's hand is in childhood; a woman meeting a client over coffee is in adulthood; a grey-haired man leaning on a cane for support while grocery shopping is in old age. However, in the 20th century, three ages turned into four as a new life stage emerged between adulthood and old age. Architect and professor Deane Simpson studies this interstitial age and its manifestations in urbanism in his book *Young-Old: Urban Utopias of an Aging Society* (Fig. 1.2).<sup>07</sup> In three main sections, Simpson examines the "age-segregated lifestyle product" in the form of the leisure-oriented retirement community (LORC): the first dealing with the sociodemographic forces at play in forming this new life stage, the second analyzing four key precedents demonstrating this highly targeted, age-specific model of urban planning, and the third collecting common traits between them. This interstitial age, coined Young-Old by American psychologist and gerontologist Bernice Neugarten, is first discussed in her 1974 paper *Age Groups in American Society and the Rise of the Young-Old*,<sup>08</sup> and is later expanded upon and alternately named the Third Age by English historian Peter Laslett in 1989.<sup>09</sup> Laslett determined that the transition from three life stages to four occurred around 1950 in England, when both men and women 25 years of age were more likely than not to live until their 70th birthday, therefore reaching the Third Age.<sup>10</sup>

The First Age, post-1950, is generally equivalent to pre-1950 childhood and is characterized primarily by dependence and education (Fig. 1.3). From birth to roughly 25 years of age, the age at which Laslett divides First Age from Second,<sup>11</sup> a person learns to become independent from their parents in various ways and at different speeds—babies can lift their own heads after only a few months, but young adults often do not

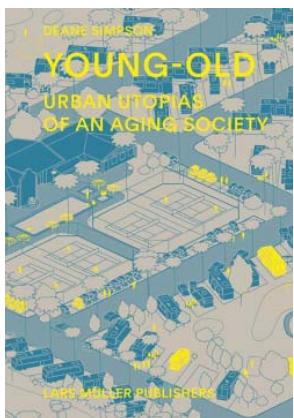
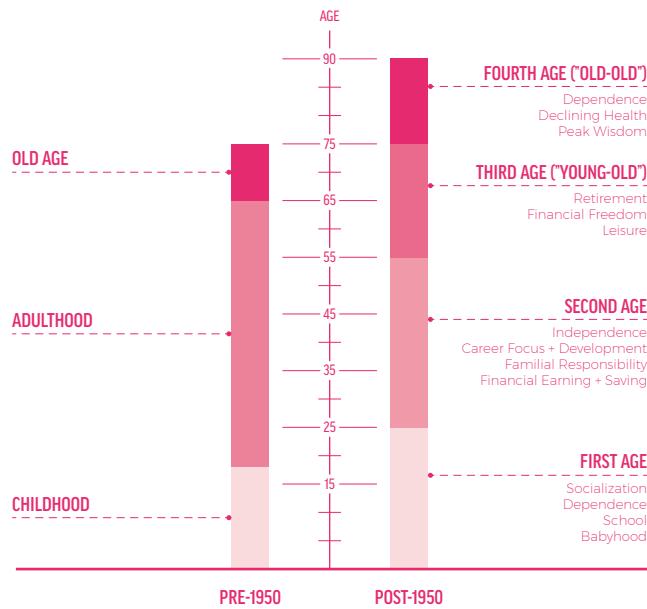


Fig. 1.2 Young-Old book cover.

Young-Old: Urban Utopias of an Aging Society, written by Deane Simpson.



*Fig. 1.3 Life stages before and after 1950.*

Prior to 1950, life could be separated into three major stages: childhood, adulthood, and old age. After 1950, according to Bernice Neugarten and later Peter Laslett, a new stage emerged: the Third Age, or the Young-Old, spanning approximately ages 55-75. This stage is typically marked by relative financial freedom, possibly retirement, and an inclination toward leisure-driven lifestyles.

achieve financial independence until well into their twenties. Most, if not all, education takes place in this life stage in preparation for the Second Age. The main portion of what is traditionally considered adulthood is the Second Age, marked by independence, typically also comes with greater responsibility in both personal and professional matters. Most of the Second Age is spent working and saving money for the Third Age, or Young-Old. Neugarten categorizes Young-Old as those between 55 and 75 years of age who "are relatively healthy, relatively affluent, relatively free from traditional responsibilities of work and family and who are increasingly well educated and politically active."<sup>12</sup> Those in the Third Age of life are generally retired and have saved enough money in the Second Age to fund activities of leisure and personal fulfillment that may not have been possible to enjoy in the earlier stages of life due to time or financial restrictions, and are still healthy enough to participate in a wide range of activities. Due to leaps in medical research and care in the 20th century, it is possible for a person to continue playing golf well into their seventies or eighties in 2017, whereas a person in their sixties in 1920 may already be of failing health. This final stage, the Fourth Age or Old-Old, is identified by the return of dependence. In declining health, a person in the Fourth Age has reached peak wisdom and has ideally made peace with their state of existence while partaking in

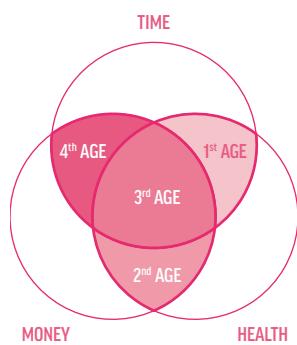


Fig. 1.4 Age vs. time, money, and health.

Based on Neugarten and Laslett's definitions of the various life stages, each Age can be expressed as a function of three assets: time, money, and health. The First, Second, and Fourth Ages only possess two of three assets simultaneously, while the Third Age enjoys the intersection of all three.

any activities they can still enjoy.

Perhaps the four Ages can then be described most simply as different combinations of three factors: Time, Money, and Health (*Fig. 1.4*). In the First Age, children and youth have abundant Time and Health, yet no Money, as they are dependent on their parents. In the Second Age, adults are still in good Health and are earning Money as they build their careers, but are often strapped on Time as a result of the many responsibilities they take on in this life stage, such as the support of children, the support of aging parents, social obligations, volunteer work, and any number of other commitments. In the Fourth Age, older adults are retired and ideally have some amount of savings accumulated from their working years, resulting in abundant Time and Money; however, their Health has deteriorated. Arguably, Laslett's emergent Third Age is the optimal intersection of all three factors: people in this life stage are usually retired or in the process of retirement, freeing up Time; they are at the end of their careers, meaning peak Money; thanks to a higher life expectancy, they are probably still in good Health.

While the milestones and achievements reached in the First and Second Ages are relatively predictable due to the focus on gaining independence and maturing into adulthood, the trajectories of adults in the Third and Fourth Ages can vary widely according to level of health and independence. Whereas Neugarten and Laslett provide general age ranges for these life stages, as they may have been more applicable at the time of their writing, it is no longer tenable to group older adults by age and make generalized statements about them. As age increases, so does variability in health and lifestyle: most five-year-olds are relatively similar in terms of daily life and physical health whereas, perhaps, there is no longer an "average" 70-year-old — they can be anywhere from bedridden to running marathons. Stories of amazing longevity and health in old age feature frequently in news media: in 2016, Ed Whitlock of Milton, Ontario (*Fig. 1.5*), then 85 years old, became the oldest person to complete a full marathon in under four hours.<sup>13</sup> Jeanne Calment of Arles, France, was covered extensively by press both locally and internationally for having the longest confirmed lifespan in history, living until 122 years of age in 1997.<sup>14</sup> In recent years, the southern Japanese island of Okinawa has risen to fame for the marked longevity of its residents and the good health they enjoy throughout the aging process. This phenomenon has attracted the attention of gerontologists and researchers looking to determine the source of Okinawan longevity, leading to the Okinawa Centenarian Study in which more than 900 centenarians have taken part to date.<sup>15</sup> Genetics, diet, and exercise have been identified as some of the most prominent factors in determining health outcomes for older adults, however, scientists are continuing to probe the question of aging further.



Fig. 1.5 Ed Whitlock, then 85, completes the 2016 Toronto Waterfront Marathon in under four hours.

### Aging Populations Worldwide

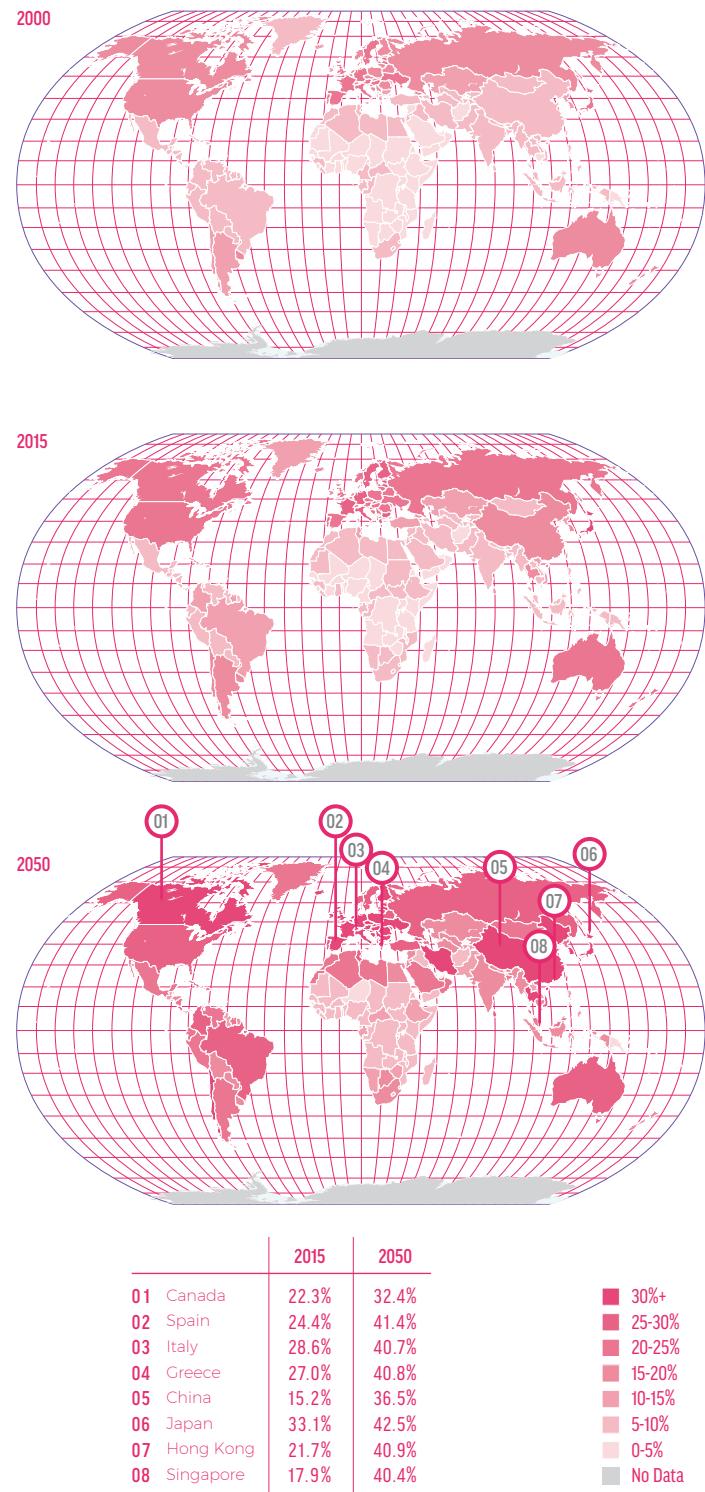
Aging has become a particularly salient topic in recent years because the world is aging at an unprecedented rate. In the 2015 edition of their *World Population Ageing* report, the United Nations found that almost every single country in the world is aging, and that the rate of aging is also accelerating (*Fig. 1.6*).<sup>16</sup> Highly developed regions like Western Europe, parts of North America, and parts of Asia already comprise the oldest populations worldwide: the percentage of people aged 60 years or over in the three oldest countries in 2015 were 33.1% (Japan), 28.6% (Italy), and 27.6% (Germany).<sup>17</sup> In other words, one in every three people in Japan is over the age of 60 (*Fig. 1.7*). This demographic group will multiply most quickly in less developed regions, where the median age has historically been low but is rapidly catching up with the developed world due to social and economic growth.<sup>18</sup> Perhaps the most alarming projection presented by the UN is the one presented first and foremost in the report: in 2015, 1 in 8 people in the world are aged 60 years or over; in 2030, they will be 1 in 6, outnumbering children 0-9 years old; in 2050, they will be 1 in 5, outnumbering youth 10-24 years old.<sup>19</sup>

This rapid shift in demographics worldwide can be attributed to a number of factors indicative of social and economic progress, and can therefore be seen as a sign of overall success for civilization as a whole. This theory seems to be an accurate assessment of developing regions, as the UN describes:

	Persons aged 60 years or over (millions)				Percentage change		Distribution of older persons (percentage)					
	2000	2015	2030	2050	2000	2015	2030	2050	2000	2015	2030	2050
World	607.1	900.9	1402.4	2092.0	48.4	55.7	100.0	100.0	100.0	100.0	100.0	100.0
<b>Development groups</b>												
More developed regions	231.3	298.8	375.2	421.4	29.2	25.6	38.1	33.2	26.8	20.1		
Less developed regions	375.7	602.1	1027.2	1670.5	60.3	70.6	61.9	66.8	73.2	79.9		
Other less developed countries	341.9	550.1	938.7	1484.9	60.9	70.6	56.3	61.1	66.9	71.0		
Least developed countries	33.9	52.1	88.5	185.6	53.8	70.0	5.6	5.8	6.3	8.9		
<b>Regions</b>												
Africa	42.4	64.4	105.4	220.3	51.9	63.5	7.0	7.2	7.5	10.5		
Asia	319.5	508.0	844.5	1293.7	59.0	66.3	52.6	56.4	60.2	61.8		
Europe	147.3	176.5	217.2	242.0	19.8	23.1	24.3	19.6	15.5	11.6		
Latin America and the Caribbean	42.7	70.9	121.0	200.0	66.1	70.6	7.0	7.9	8.6	9.6		
Oceania	4.1	6.5	9.6	13.2	56.2	47.4	0.7	0.7	0.7	0.6		
Northern America	51.0	74.6	104.8	122.7	46.4	40.5	8.4	8.3	7.5	5.9		
<b>Income groups</b>												
High-income countries	230.8	309.7	408.9	483.1	34.2	32.0	38.0	34.4	29.2	23.1		
Upper-middle-income countries	195.2	320.2	544.9	800.6	64.0	70.2	32.1	35.5	38.9	38.3		
Lower-middle-income countries	159.7	237.5	393.9	692.5	48.8	65.9	26.3	26.4	28.1	33.1		
Low-income countries	21.2	33.2	54.0	114.8	56.2	63.0	3.5	3.7	3.9	5.5		

*Fig. 1.6* Population aged 60 years or over in the world, 2000, 2015, 2030, and 2050.

Every region in the world, regardless of development or income level, will be aging at a rapid pace in the next 35 years. Less developed regions will age more rapidly than more developed regions as they are quickly catching up to the high levels of aging already seen in more developed regions.



*Fig. 1.7 Percentage of population aged 60 years or over, by country, in 2000, 2015, and 2050.*

Specific countries within certain regions will be hit harder than others in the next 35 years, mostly in Europe and East Asia.

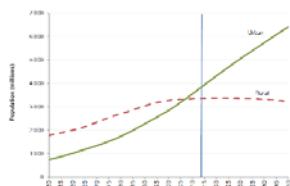
Population ageing is in many ways a demographic success story, driven by changes in fertility and mortality that are associated with economic and social development. Progress in reducing child mortality, improving access to education and employment opportunities, advancing gender equality, and promoting reproductive health and access to family planning have all contributed to reductions in birth rates. Moreover, advancements in public health and medical technologies, along with improvements in living conditions, mean that people are living longer and, in many cases, healthier lives than ever before, particularly at advanced ages. Together, these declines in fertility and increases in longevity are producing substantial shifts in the population age structure, such that the share of children is shrinking while that of older persons continues to grow.<sup>20</sup>

The aging of populations in developing regions over the coming decades will reflect continued success in establishing social and economic infrastructure in those places, but will indicate a growing crisis in areas that are already highly developed. Existing social institutions and infrastructure will – and have already begun to – bend under the weight of disproportionately older populations, as many of them were designed or initiated decades ago when life expectancy was much lower.

For instance, the statutory retirement age around the world has remained largely stagnant despite the aging population: between 2006 and 2014, the statutory retirement age for both men and women has only been raised in a handful of countries, with most countries having a retirement age of 60 to 64 years.<sup>21</sup> Comparatively, life expectancy has risen significantly between 1950 and 2015: globally, life expectancy rose from 46.8 years in 1950 to 70.5 years in 2015, with more developed regions like North America reaching 79.2 years.<sup>22</sup> This means the average person will live for 15 to 20 years after retirement, relying on personal savings and government assistance for income. With the size of the global workforce remaining mostly the same or even shrinking over time as people increasingly choose not to have children, the sustainability of pension plans comes into question.<sup>23</sup> Fewer older adults will have children to rely on for assistance, financially and otherwise, and will live to collect their pensions for longer – perhaps longer than was expected when those pension plans were designed. The support ratio will become too low to maintain government assistance as it was intended: the ratio of people 65 years and over to working-aged people (20–64 years old) in 2015 was 1 to 7, and by 2050 will shrink to 1 to 3.5; in Africa, this support ratio will be as low as 3.2.<sup>24</sup> As a result, 30% of men and 15% of women globally aged 65 years or older are still active in the

workforce,<sup>25</sup> partially as a response to these predictions and partially because they are still able to do so.

Health care systems will also become overwhelmed by the rapidly growing group of people 60 years or over who often require care for chronic diseases and illnesses relating to old age. More health care providers, funding, and physical space will be needed despite a stagnant workforce size and already limited budgets. To fund the increased burden on the healthcare system, there may be increased taxation, producing further financial strain on those of working age.



*Fig. 1.8* World urban vs. rural populations, 1950 - 2050.

In 2007, the world's urban population outnumbered the rural population for the first time in history. This disparity will expand in future years as urban populations grow rapidly while rural populations decline.

### *Aging and Urbanization*

The concerns outlined thus far do not exist in isolation. Aging and changing demographics affect every person and therefore intersect a number of other issues developing concurrently. The growing proportion of seniors over 60 years old is a predictor of major stress on economic and social systems in more developed and less developed countries alike. These stresses are further exacerbated by a parallel trend as widespread and rapid as aging: urbanization.

For the first time in history, over half of the world population is living in urban areas—a statistic widely circulated since its emergence in 2007 (*Fig. 1.8*).<sup>26</sup> As many long-standing industries become obsolete and disappear, so do the towns that relied on them for economic sustenance. Mainstream adoption of factory farming practices and agricultural technology have vastly reduced the size of the agricultural workforce in recent years, pushing many farming families living in rural areas to find work in other trades, often in urban areas. Mining towns like Anyox, British Columbia, once home to a prominent copper mine and smelter, thrived in times of prosperity but were quickly abandoned when reserves were depleted and the price of copper dropped.<sup>27</sup> As large-scale factories became increasingly efficient, milling towns like Ocean Falls, British Columbia became financially unsustainable.<sup>28</sup> Many small rural settlements have become ghost towns; former residents have moved to cities as the density of job opportunities, infrastructure, and people in metropolitan areas can better sustain modern life. The interconnected nature of the city is especially conducive to building jobs for the future, as the global market in the current Information Age begins to reflect a knowledge economy rather than a labour economy.<sup>29</sup>

As working-age people move to the city in pursuit of employment and economic stability, so do older adults. In countries like China, where the population is urbanizing the most quickly, young adults from rural and urban areas alike flock to universities in urban centres to receive an education and often stay in those cities after graduation. They lay down roots, visiting their rural hometowns perhaps once a year around the holiday



*Fig. 1.9 Map of trips taken during *chunyun* in 2015.*

Urban workers visit home for the Lunar New Year, making long trips across multiple modes of transportation to many rural corners of the country. Transportation hubs in Beijing, Shanghai, and Shenzhen make up over one quarter of the trips taken during *chunyun*.

season. This mass migration, called *chunyun* (*Fig. 1.9*) or "spring migration", lasts 40 days starting ten days before the Lunar New Year and involves millions of working-age Chinese taking multiple forms of transportation on trips over hundreds of kilometres long to return home. In 2015, over 3.7 billion trips were taken in this period.<sup>30</sup> As this working class ages and bears children, they are unlikely to return to their rural hometowns as their lives are firmly rooted in the city. The urban population will continue to explode, as described in the UN's report *World Urbanization Prospects: The 2014 Revision*: "The largest rural population declines are expected in China, with a reduction of 300 million rural dwellers, equivalent to close to one half of the rural population in 2014, and in India, where the number of rural residents is expected to decline by 52 million, representing 6 per cent of the rural population in 2014."<sup>31</sup>

Since more developed regions will see the highest proportion of urbanized populations and the highest proportion of older adults (*Fig. 1.10*), there may be merit in tackling both issues simultaneously. In a 2016 report

Development group	Percentage urban						Rate of urbanization (per cent)				
	1950	1970	1990	2014	2030	2050	1950-1970	1970-1990	1990-2014	2014-2030	2030-2050
World	29.6	36.6	42.9	53.6	60.0	66.4	1.07	0.80	0.92	0.71	0.50
More developed regions	54.6	66.7	72.4	78.0	81.5	85.4	1.00	0.41	0.31	0.27	0.24
Less developed regions	17.6	25.3	34.8	48.4	56.2	63.4	1.79	1.61	1.37	0.92	0.60

*Fig. 1.10 Percentage urban by development group, selected periods, 1950-2050.*

While the world's urban population is just over 50%, the urban population in more developed regions is already at 78% and rising. By 2050, the vast majority of people living in more developed regions will live in urban centres (85.4%).

by S&P Global Inc., a publicly traded corporation specializing in financial data, analytics, and research, titled *Aging and Urbanization*, researchers have identified aging and urbanization as two global demographic mega-trends that will drive demand for the design of future cities.

Two inexorable and intersecting demographic trends are already defining the 21st century: rapid urbanization and an aging population. The world's cities must meet the challenges posed by these changes to compete on a global scale. Widely accepted statistics bring these challenges into clear focus. By 2030, more than 1 billion people — one in every eight — will be aged 65 or older. And just two decades later, nearly two-thirds of the world's population will live in urban areas, up from just over half today, with nearly 1 billion older people living in cities in the developing world alone.<sup>32</sup>

Based on surveys and studies conducted by S&P Global Inc. of various countries worldwide, the challenges posed by aging and urbanization include:

- Acute need of investment in infrastructure, including roads and transport systems, power grids, sanitation
- Increased demands on pension plans as people live longer
- Growing burden on healthcare systems
- Unsustainable dependency ratio
- Lack of amenable housing options for older adults living in urban centres

Strategies for addressing these challenges must be multi-disciplinary and engage both the private and public sectors, which will inevitably require considerable time, money, effort, and coordination. However, this final point — the issue of housing for urban older adults — can perhaps be addressed more productively and proactively through the intervention of private-sector architects and developers.

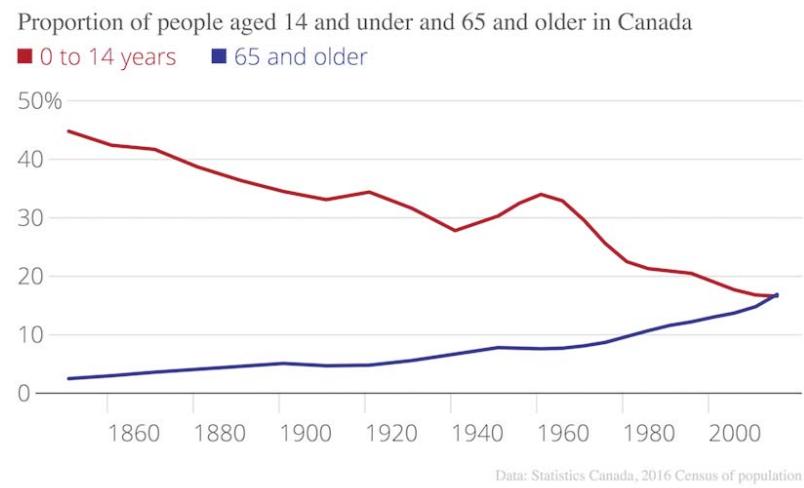
#### *Toronto as Case Study*

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Canada, specifically Toronto, serves as a prime subject for the study of aging and urbanization due to the unique set of conditions at play. It is a highly developed country that bears the correspondingly high rate of aging: in 2015, more than 1 in 5 Canadians was aged 60 or over. In 2030, it will be more than 1 in 4. By 2050, that ratio will be almost 1 in 3.<sup>33</sup> Additionally, these projections take into account immigration, generally

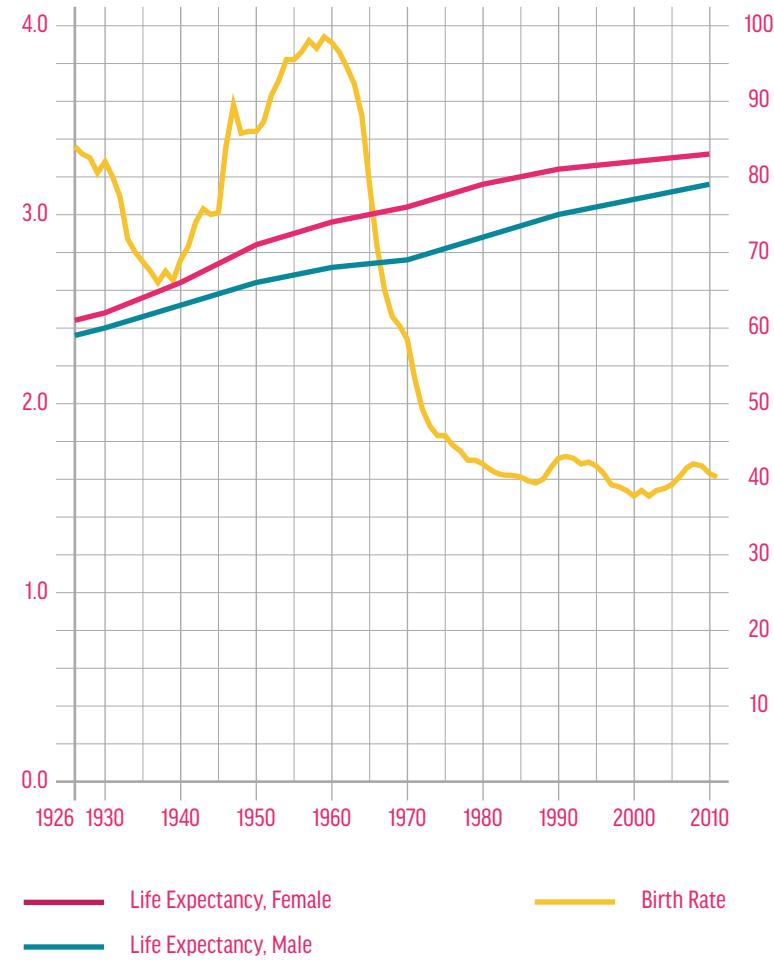
pushing the median population age lower; if the immigration rates drop, the percentage of Canadians aged 60 or over will be even higher. The population of Canadians living in urban areas reached 29 million in 2014, or 82%, divided primarily between Toronto, Montreal, and Vancouver.<sup>34</sup> Because Canada is also a popular destination for immigrants from all over the world, a multitude of cultural norms and values are brought together that enrich and shape the life of the city — a one-size-fits-all housing solution does not apply. Lastly, Toronto and Vancouver continue to experience unpredictable housing markets marked by extreme demand and low supply, where the housing stock is already a problem and requires re-evaluation. The confluence of factors existing in Canada link aging and urbanization to even more contemporary issues, creating an opportunity to design most intelligently for the future.

While Canada's population has aged slowly over the past century, recent trends in fertility and life expectancy have caused this process to accelerate over the past two to three decades. As new census information comes to light every few years — most recently in 2016 — questions about the future of the economy, pensions, infrastructure, and the general well-being of the country arise and remain difficult to answer. New data shows that Canadians 65 and older now outnumber Canadian children under the age of 14 for the first time in history, predicting economic difficulty in the future when the workforce cannot support the weight of an aging population (*Fig. 1.11*).<sup>35</sup> The reasons for this significant shift in demographics in Canada



*Fig. 1.11 Proportion of people aged 14 and under and 65 and older in Canada*

Since the Confederation of Canada, youth aged 0 to 14 took up a large portion of the population, while adults 65 and older were relatively rare — as was the case in many countries worldwide at the time. Over time, fertility rates dropped while modern medicine allowed many adults to live beyond age 65. Other than a small rise in fertility during the Baby Boom, this trend has continued until current day, where the proportion of adults 65 and older has outnumbered children aged 0 to 14 for the first time.



*Fig. 1.12* Life expectancy for males and females vs. fertility in Canada over time

When life expectancy and infant mortality were high, a correspondingly high fertility rate caused Canada's population to grow. As medical advances and changing social attitudes occurred through the 20<sup>th</sup> century, life expectancy climbed while fertility rates dropped below replacement, causing Canada's population to shrink and age.

can be attributed to many of the factors identified in the UN aging report: improved medical care and nutrition leading to longer life expectancy and changing societal trends leading to lowered fertility (*Fig. 1.12*). According to Statistics Canada, life expectancy in 2011 was 81.7 years — 24.6 years more than in 1921.<sup>36</sup> Since the mid-century Baby Boom, when the number of children per woman peaked at 3.94 in 1959, fertility has been in decline due to social, economic, and legislative changes: "The influence of religion on daily life was in decline, contraception was now more effective and readily available than ever and the participation of women in higher education and in the paid labour force was on the rise. Fertility levels fell rapidly. Changes to divorce legislation in 1968, and again in 1986, allowed for easier access to divorce and a subsequent increase in the number of divorces, likely affecting

both the number and timing of births for couples.<sup>37</sup> As a result, fertility in Canada has been below replacement levels — generally defined as 2.1 children per woman — for over 40 years, and is currently at 1.61.<sup>38</sup> Long life expectancy and low fertility happening simultaneously mean that healthy, working adult Canadians today will live long into retirement and there will not be enough young adults to take their place in the workforce or support the infrastructure they rely on in their advanced age. This effect can be observed clearly in the comparison of Canada's population pyramids over the past 80 years (*Fig. 1.13*). Where they once conformed to the typical pyramid distribution indicative of a growing population, with the greatest number of people in the youngest age groups and lowest number in the oldest age groups, the Baby Boom visibly disrupted this pattern, creating a large spike in births. Coinciding with the aforementioned social, economic, and legislative changes, the pyramid began to shrink in size soon after the Baby Boom abated. As of 2016, the population pyramid has become inverted. To interpret the pyramid shape literally, this distribution is not structurally sound as the narrow base of the pyramid cannot support the weight of the mass above it. In other words, those of working age, who comprise the middle and base sections of the pyramid, may not be able to output enough through taxation and economic growth to finance all of the infrastructure required for a large population of older adults.

Not only is the Canadian population overall experiencing a significant shift, so are the way households are comprised in the nation (*Fig. 1.14*). Within the share of private households, they can be divided most coarsely into one-family households and other. One-family households can be subdivided into couples with children, couples without children, and lone parents. Other households include one-person households, multiple family households, and "other", representing all other living arrangements not already named - aunt and nieces, siblings, roommates, and so on. Notably, couples without children is the fastest growing group in the country and began to outnumber couples with children (nuclear families) in 2006, with the gap growing larger in 2011.<sup>39</sup> This shift can likely be attributed to changing social values, as with fertility. Fewer young adults are adhering to the conventional life path — growing up, getting married, and having children - which is reflected in the growing number of households comprised of unmarried roommates, couples cohabiting with or without marriage, and mixed households.

Continued immigration to Canada may also be a significant contributing factor to the shift away from the single nuclear family household. While the number of immigrants landing in Canada has fluctuated, the number and proportion of foreign-born Canadians has steadily increased since 1951; in 2011, over 20% of the Canadian population was foreign-born.<sup>40</sup> With immigration comes a diversity of cultural values, lifestyles, and

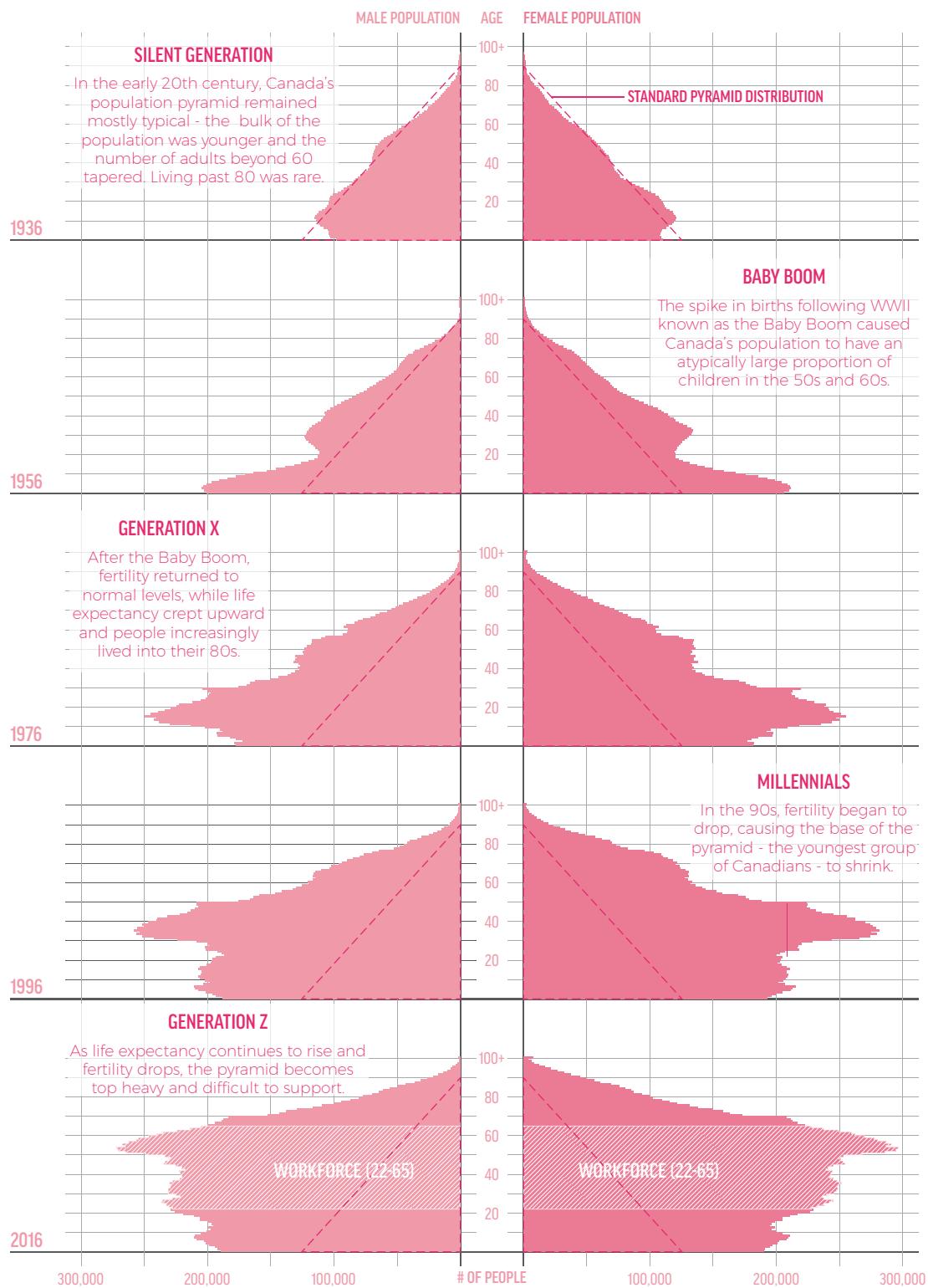
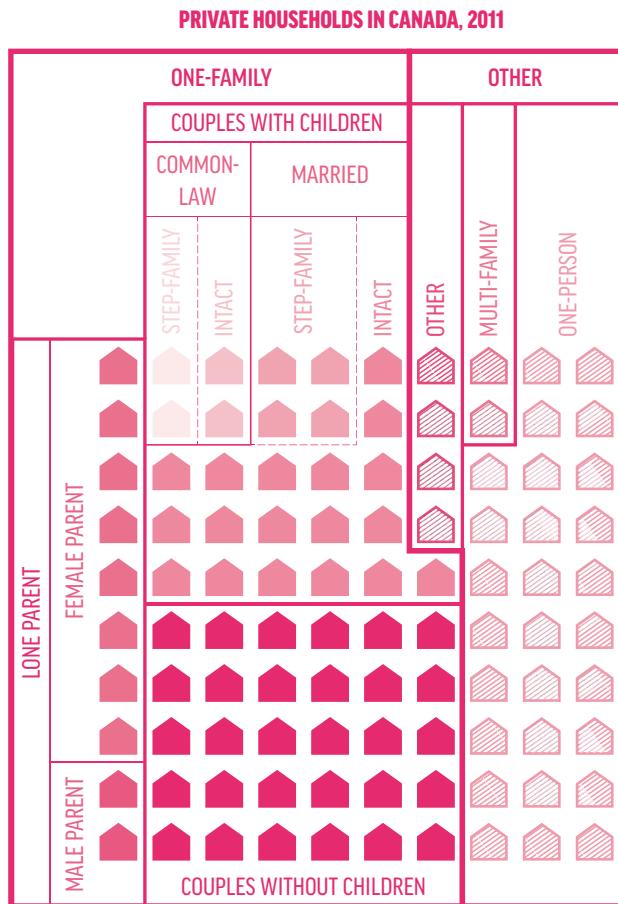


Fig. 1.13 Canada population pyramids, 1936, 1956, 1976, 1996, 2016

Over the past century, Canada's population pyramids have shifted from the typical pyramid form — with most youth and least elderly — to a top-heavy shape defined by the aging Baby Boomer generation and falling fertility rates. If life expectancy continues to rise year after year, a large percentage of Boomers will still be alive in old age and rely on the support of a shrinking workforce.



*Fig. 1.14 Breakdown of household composition in Canada, 2011*

Changing social values and modern attitudes toward family planning have shifted household composition in Canada in the 21<sup>st</sup> century. In 2011, households comprised of couples without children outnumbered couples with children.

attitudes toward family and aging that result in a variety of household types, especially as immigrants' country of origin becomes more diverse every year: whereas most immigrants to Canada came from the US, British Isles, and Western Europe in the late 19<sup>th</sup> and early 20<sup>th</sup> century, most foreign-born residents of Canada are now coming from Asia and Africa (*Fig. 1.15*).<sup>41</sup> Cultures in these regions tend to be more collectivistic - prioritizing the success of the group over the individual - and often maintain close ties to the extended family.<sup>42</sup> These immigrant families tend to settle in the three largest metropolitan areas in Canada: Toronto (35.9% of total immigrants in 2016), Vancouver (13.1%), and Montreal (12.4%).<sup>43</sup> The convergence of immigrant populations on these urban areas may explain the rise in multi-generational and multi-family households in the Greater Toronto Area and suburbs of Vancouver: "Multiple-family households were also prevalent in the municipalities surrounding the city of Toronto, including: Brampton

(10.5%), Markham (8.1%), Vaughan (5.5%), Richmond Hill (5.4%), Richmond (5.1%), Mississauga (5.0%) and Ajax (4.8%). Additionally, in British Columbia, the municipalities of Surrey (7.6%) and Abbotsford (6.1%) had percentages of multiple-family households that were among the highest in the country. The larger share of these households may reflect higher proportions of immigrants in these areas relative to elsewhere in Canada.<sup>44</sup>

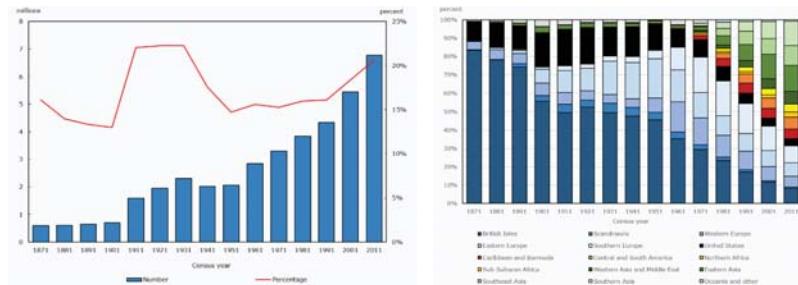


Fig. 1.15 Number of immigrants per year to Canada vs. percentage of immigrants within total population by year, proportion of immigrants to Canada by countries of origin by year

While the total number of immigrants living in Canada continues to rise every decade, the percentage of immigrants among the total Canadian population fluctuates, likely according to the fluctuations in birth rate among non-immigrant Canadians. The cultural makeup of immigrants to Canada has changed significantly: in 1871, virtually all immigrants came from Britain (dark blue), Western Europe (medium blue), and the US (black); in 2011, the group is dominated by countries in Asia (green) and Africa (yellow, orange, red).

Despite the wide diversity of household types, families, and cultures in Canada, two housing types seem to continue to dominate the real estate market in urban areas: the high-density high-rise condominium and the single-family detached or semi-detached house. Toronto in particular has experienced a recent and sudden deterioration in housing affordability, ranking 13<sup>th</sup> least affordable of 92 surveyed cities comparing median house price and median household income, better than Hong Kong, Sydney, and Vancouver but worse than London and New York.<sup>45</sup> According to the Royal Bank of Canada's September 2017 report *Housing Trends and Affordability*, the cost of home ownership (defined as mortgage payments, property taxes, and utilities) in Toronto has reached 75.4% of median gross income in Q2 of 2017.<sup>46</sup> Given the marginal tax rates in Ontario and Canada, home ownership is virtually out of reach for the average Torontonian. Real estate developers have reacted by shifting the supply of new construction housing toward high-density condos, providing a fraction of the liveable space of a detached house for a lower cost. When separated into single-family detached (SFD) and condominium apartment, a wide gap in affordability appears: cost of

SFD ownership in the Toronto area has reached 92.4% of median gross income, with an average price of \$1,100,000, while cost of condo ownership is 41.4%, with an average price of \$460,000.<sup>47</sup> As more people choose to live in Toronto's core but may not be able to afford a SFD in the same location, apartments in buildings over five storeys have become the fastest-growing dwelling type of choice for people of all ages and comprise the bulk of new construction in the city, as noted in the City of Toronto's *Housing Occupancy Trends 1996-2011*:

The development industry has responded to this change in household characteristics. Condominium apartment units have outstripped all other forms of housing construction to meet the demand. Over the past 15 years, apartments in buildings of five or more storeys have made up 7 of every 10 net new units added to Toronto's housing stock. In turn, this supply has appealed to those in the City and those moving to Toronto who are in need of housing, reinforcing the proportion of smaller households within the City.<sup>48</sup>

Despite the focus on supply of high-rise, high-density condos, the desire for older adults to age in place appears to be growing rapidly, tying up large portions of the SFD housing stock and further pushing new homeowners toward condos:

Housing turnover is increasingly affected by the number of seniors occupying houses and low-rises. The share of seniors 80 years of age and older aging in place grew from 35% in 1996 to 53% in 2011. Current research confirms this growing trend. Canada's national housing agency reports "some aging households do change residences, but seniors are generally not in a hurry to move out of their homes. They move much less often than younger people. In 2011, 18% of seniors had changed residence in the previous five years, compared to almost three quarters (72%) of those aged 25 to 29".<sup>49</sup>

The result is a dichotomy in the housing market: Torontonians looking to purchase a home can generally choose between exorbitantly expensive, arguably over-valued detached homes with more square footage, and less expensive but significantly smaller condo units in high-rise buildings that are potentially equally over-valued. Even beyond economic considerations and limitations, this condition of extremes forces the diverse array of household types to be shoe-horned into just two predominant dwelling types with few choices in between.

#### Axiom Condos



#### Nobu Residences



#### Minto Yorkville Park



#### 5959 Towers



#### Garrison Point



*Fig. 1.16 Marketing for new Toronto condo developments*

#### Market Divide

The divide between the market for houses and the market for condos is deep and wide, and is characterized by both age and socio-economic status. Those who can afford to own a house in the current market are generally older adults who purchased their homes at attainable prices decades ago or have years of accumulated wealth, or are younger adults with high-income jobs. Yet, many demographic groups regardless of age or wealth find houses — especially single-family detached houses — attractive due to the sense of freedom they bring: no maintenance fees to pay for under-used amenities or future repairs, no shared walls with neighbours that allow sound travel, no restrictions on renovations. For those with larger, non-conventional families or households with children, a house is attractive due to its larger size and often clearer separation between spaces, allowing enhanced privacy between occupants. Outdoor spaces like the front porch and front and back yards further add to the appeal, providing space for pets and outdoor gatherings for a modest to large group of guests.

The condo development industry has responded to the economic exclusivity of house ownership by targeting their product to those who do not own houses either by choice or not — typically young people without children, like young urban professional (yuppie) couples, roommates, and singles. This is made clear in their marketing materials, often a homebuyer's first introduction to a building (*Fig. 1.16*). Many feature young, attractive, well-dressed people — mostly women — to invoke an imagined, exclusive lifestyle in which the homebuyer would be invited to participate. Pre-construction renderings almost exclusively feature young, able-bodied people. One development slated for completion in 2018 touts its exclusivity as a virtue, not-so-subtly named Yonge + Rich. Even a development aimed at including "everyone", as claimed by the upcoming Garrison Point project near Liberty Village, shows only able-bodied, young adults and children in their promotional material — no older adults or people with disabilities. Still, even if one could ignore the tone set by developers in the promotion and sale of their projects, the limitations inherent in the design of typical Toronto condos are more difficult to avoid. Dark, cramped unit interiors with few bedrooms and a lack of outdoor space make condo living unfavourable for families, children, multi-family or multi-generational households, and older adults.

Some Toronto households not well-served by current housing stock have responded in creative and often unconventional ways. Co-buying has become a more common solution to the lack of affordable houses on the market, with households pooling resources to purchase and live in one property. Two Toronto couples, each with a young child, plus a dog, were

able to afford a three-bedroom, three-bathroom semi-detached house in Leslieville for \$710,000 plus \$50,000 in renovations by co-buying, allowing them to keep costs down for each family while building equity.<sup>50</sup> One middle-aged Toronto couple sold their home to pool resources with their adult son and daughter-in-law to buy a larger, shared duplex with separate entrances, kitchens, and HVAC in a 62-38 split financially.<sup>51</sup> A couple with two children co-bought a house with their single friend, and have taken on another friend as a tenant; the household functions as a whole, with each adult taking on different roles.<sup>52</sup> To combat the compactness of condo units, some condo owners have bought adjacent units — either below, above, or on either side — to combine with their existing unit, like one Torontonian did with his unit at the Met and Yonge and Carlton, installing stairs between upper and lower units.<sup>53</sup> While some homeowners have successfully taken matters into their own hands to create the housing they desire within the constraints of the existing housing stock, but must still invest significant time and money to have their needs met (*Fig. 1.17*).

To sustain the growth, diversification, and aging of Toronto's population, housing options in Toronto must expand to meet the needs of as many households as possible. The challenges faced by older adults in modern society are not separate from the struggles of the young, and should be addressed as parts of a whole. Looking concurrently at the demands driving the private sector and the housing needs of a shifting demographic, this thesis examines the gaps in Toronto's housing stock to offer an alternate model of housing that is flexible, adaptable, and builds social capital for people of all ages.

Two co-buyer families



Co-buying parents and adult children



Co-buying family and family friend



Adapted two-storey condo unit



*Fig. 1.17* Alternate adapted housing options

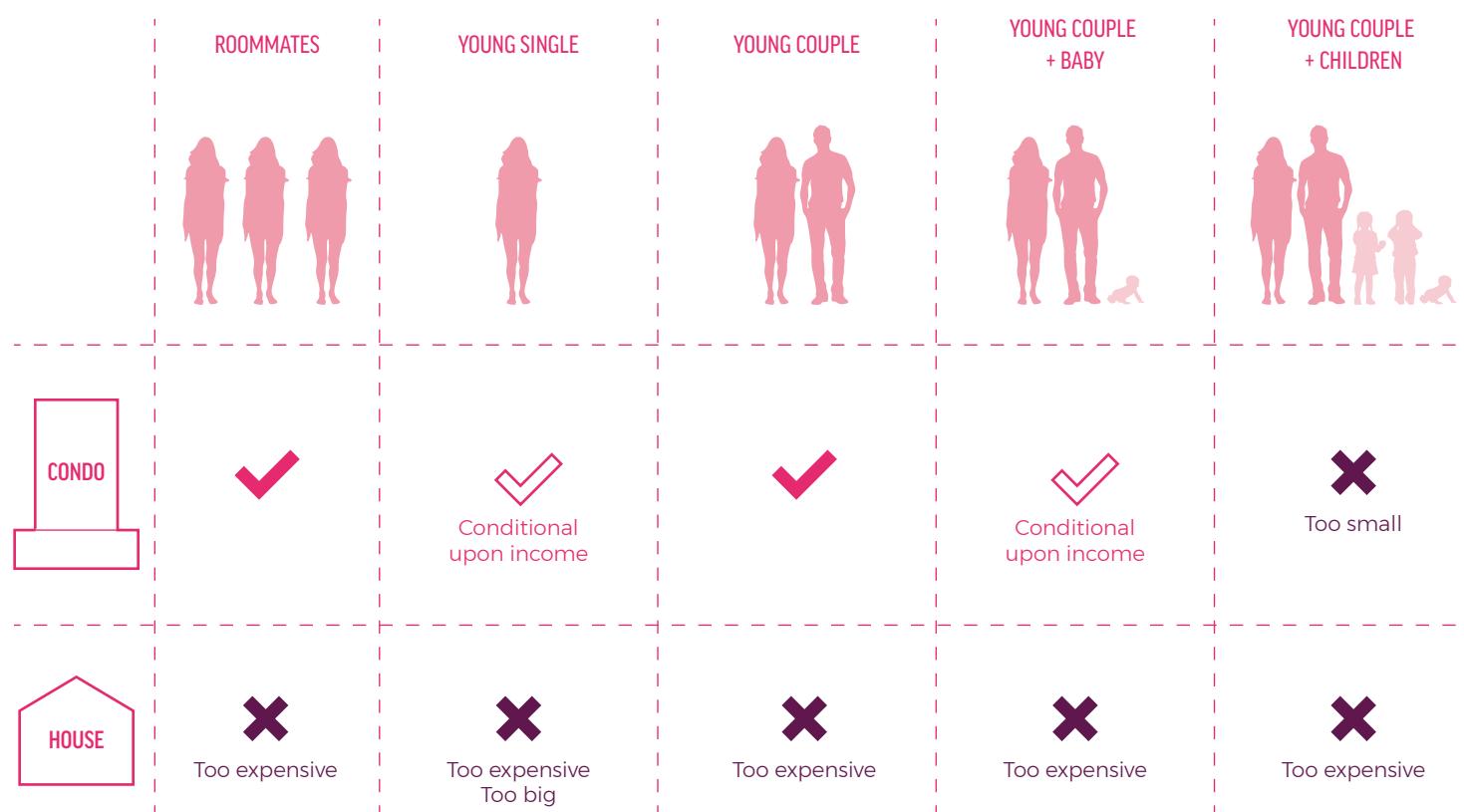


Fig.  
Suitability of housing option

YOUNG-OLD EMPTY NESTERS	YOUNG-OLD + ADULT CHILD	OLD-OLD	YOUNG-OLD GRANDFAMILY	MULTI-GENERATIONAL
				
 Slightly cramped	 Slightly cramped	 Too small	 Too small	 Too small
 Too big	 Too big	 Too big	 Too expensive	

1.18  
s for various household types

*Endnotes*

01. "History of Smallpox," Centers for Disease Control and Prevention, August 30, 2016, accessed June 8, 2017, <https://www.cdc.gov/smallpox/history/history.html>.
02. Atul Gawande, *Being Mortal: Medicine and What Matters in the End* (New York, NY: Metropolitan Books: Henry Holt and Company, LLC, 2014).
03. Ibid., 28.
04. Ibid., 29.
05. Ibid., 34.
06. Ibid., 31.
07. Deane Simpson, *Young-old: Urban Utopias of an Aging Society* (Zürich: Lars Müller Publishers, 2015).
08. Bernice L. Neugarten, "Age Groups in American Society and the Rise of the Young-Old", *The Annals of the American Academy of Political and Social Science* 415, no. 1 (September 1, 1974): 187-196.
09. Peter Laslett, *A Fresh Map of Life: The Emergence of the Third Age* (London: Weidenfeld & Nicolson Limited, 1989).
10. Ibid., 86.
11. Ibid., 146. Laslett acknowledges that it is imprecise to suggest that 25 years of age is the definitive boundary between First and Second Age, but realizes the practical necessity of not leaving this boundary ambiguous.
12. Neugarten, "Age Groups", 187.
13. Jere Longman, "85-Year-Old Marathoner Is So Fast That Even Scientists Marvel," *New York Times*, December 28, 2016, accessed September 12, 2017, <https://www.nytimes.com/2016/12/28/sports/ed-whitlock-marathon-running.html>.
14. Craig R. Whitney, "Jeanne Calment, World's Elder, Dies at 122," *New York Times*, August 5, 1997, accessed September 12, 2017, <https://www.nytimes.com/1997/08/05/world/jeanne-calment-world-s-elder-dies-at-122.html>.
15. The Okinawa Centenarian Study, "The Study," The Okinawa Centenarian Study: The Study, July 7, 2001,, accessed September 12, 2017, <http://www.okicent.org/study.html>.
16. United Nations, Department of Economic and Social Affairs, Population Division, *World Population Ageing 2015* (ST/ESA/SER.A/390) (New York: United Nations, 2015), 1.
17. Ibid., 29.
18. Ibid., 10.
19. Ibid., 5.
20. Ibid., 3.
21. United Nations, *World Population Ageing 2015*, 83.
22. Ibid., 48.
23. Ibid., 6.
24. Ibid., 7.
25. Ibid.
26. United Nations, Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2014 Revision* (ST/ESA/SER.A/352) (New York: United Nations, 2014), 7.

27. Rosemary E. Ommer, *Coasts Under Stress: Restructuring and Social-Ecological Health* (Montréal: McGill-Queens University Press, 2014), 140.
28. Bruce Ramsey and Roland Neave, *Rain People: the Story of Ocean Falls*, 2nd ed. (Kamloops: Wells Gray Tours, 1997).
29. Manuel Castells, *The Rise of the Network Society*, 2nd ed, vol. 1, 3 vols. (West Sussex: Wiley-Blackwell, 2010), 5.
30. CNN Staff, "What does the biggest human migration on earth look like on a map?" CNN Travel, February 18, 2015, accessed September 10, 2017, <http://www.cnn.com/travel/article/china-spring-migration-chunyun/index.html>.
31. United Nations, *World Urbanization Prospects*, 15.
32. *Aging and Urbanization: Principles for Creating Sustainable, Growth-Oriented and Age-Friendly Cities*. Report. Global Coalition on Aging and the McGraw Hill Financial Global Institute. McGraw Hill Financial Global Institute, 2016.
33. United Nations, *World Population Ageing 2015*, 126.
34. United Nations, *World Urbanization Prospects*, 201.
35. Terra Ciolfe, "What the Census Tells Us about Canada's Aging Population," *Macleans*, May 3, 2017, accessed September 5, 2017, <http://www.macleans.ca/news/canada/what-the-census-tells-us-about-canadas-aging-population/>.
36. Yves Decady and Lawson Greenberg, "Ninety years of change in life expectancy" *Health at a Glance*, July 2014, Statistics Canada Catalogue no. 82-624-X.
37. Statistics Canada, "Fertility: Fewer children, older moms" *Canadian Megatrends*, February 2014, Statistics Canada Catalogue no. 11-630-X2014002.
38. Ibid.
39. Anne Milan and Nora Bohnert, "Canadian households in 2011: Type and growth" *Census in Brief*. September 2012. Statistics Canada Catalogue no. 98-312-X2011003.
40. Statistics Canada, "150 years of immigration in Canada" *Canadian Megatrends*. June 2016. Statistics Canada Catalogue no. 11-630-X2016006.
41. Ibid.
42. Eva G. T. Green, Jean-Claude Deschamps, and Dario Páez. "Variation of Individualism and Collectivism within and between 20 Countries," *Journal of Cross-Cultural Psychology* 36, no. 3 (May 1, 2005): 321-39. doi:10.1177/0022022104273654.
43. Statistics Canada, "Immigration and ethnocultural diversity: Key results from the 2016 Census" *The Daily*, October 2017, Statistics Canada Catalogue no. no. 11-001-X.
44. Milan et al., *Census in Brief*.
45. Performance Urban Planning, 13th Annual Demographia International Housing Affordability Survey (2016: 3rd Quarter). Christchurch: Demographia, 2017.
46. RBC Economics, Housing Trends and Affordability: *Housing affordability strains intensified in Canada in the second quarter of 2017*, Toronto: RBC Economics Research, 2017, accessed September 12, 2017, [http://www.rbc.com/newsroom/\\_assets-custom/pdf/20170929-ha.pdf](http://www.rbc.com/newsroom/_assets-custom/pdf/20170929-ha.pdf).
47. Ibid.
48. City of Toronto, City Planning Division, Strategic Initiatives, Policy & Analysis, *Housing Occupancy Trends 1996-2011*, October 2015, accessed September 12, 2017, <https://www.toronto.ca/legdocs/mmis/2015/pg/bgrd/backgroundfile-84816.pdf>, 8.
49. Ibid., 10
50. Christina Gonzales, "How Some Torontonians Are Pooling Their Resources to Beat High Housing Prices," *Toronto Life*, February 2, 2017, accessed September 12, 2017, <https://torontolife.com/real-estate/houses/inside-complicated-world-home-co-ownership/>.
51. Ibid.
52. Ibid.
53. Donna Laporte, "Condo Buyer Makes His a Double," *The Toronto Star*, February 7, 2009, accessed September 12, 2017, [https://www.thestar.com/life/homes/2009/02/07/condo\\_buyer\\_makes\\_his\\_a\\_double.html](https://www.thestar.com/life/homes/2009/02/07/condo_buyer_makes_his_a_double.html).

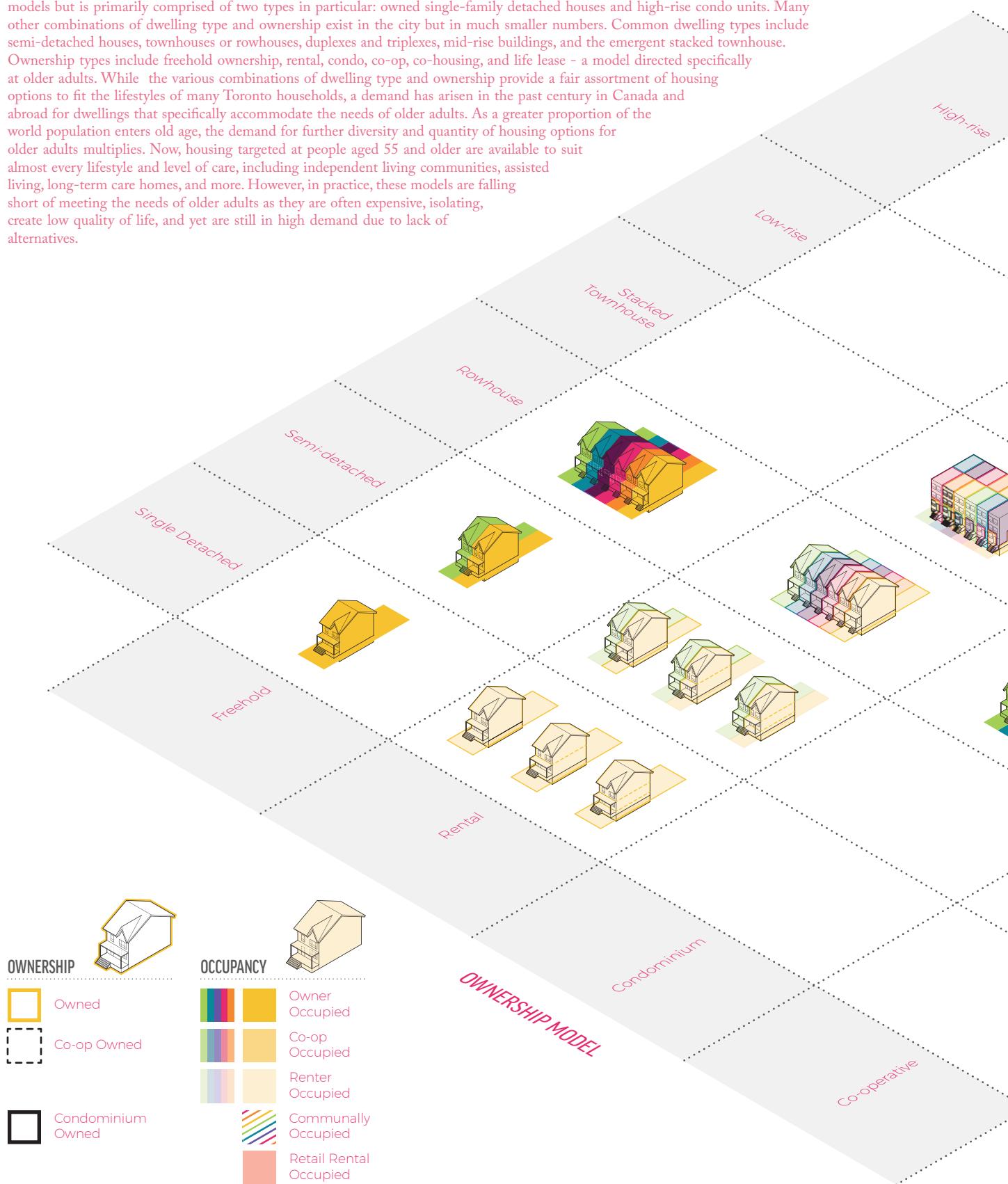




## EXISTING HOUSING

## Existing Housing Options

The collection of housing stock currently available to private households in Toronto includes many dwelling types and ownership models but is primarily comprised of two types in particular: owned single-family detached houses and high-rise condo units. Many other combinations of dwelling type and ownership exist in the city but in much smaller numbers. Common dwelling types include semi-detached houses, townhouses or rowhouses, duplexes and triplexes, mid-rise buildings, and the emergent stacked townhouse. Ownership types include freehold ownership, rental, condo, co-op, co-housing, and life lease - a model directed specifically at older adults. While the various combinations of dwelling type and ownership provide a fair assortment of housing options to fit the lifestyles of many Toronto households, a demand has arisen in the past century in Canada and abroad for dwellings that specifically accommodate the needs of older adults. As a greater proportion of the world population enters old age, the demand for further diversity and quantity of housing options for older adults multiplies. Now, housing targeted at people aged 55 and older are available to suit almost every lifestyle and level of care, including independent living communities, assisted living, long-term care homes, and more. However, in practice, these models are falling short of meeting the needs of older adults as they are often expensive, isolating, create low quality of life, and yet are still in high demand due to lack of alternatives.



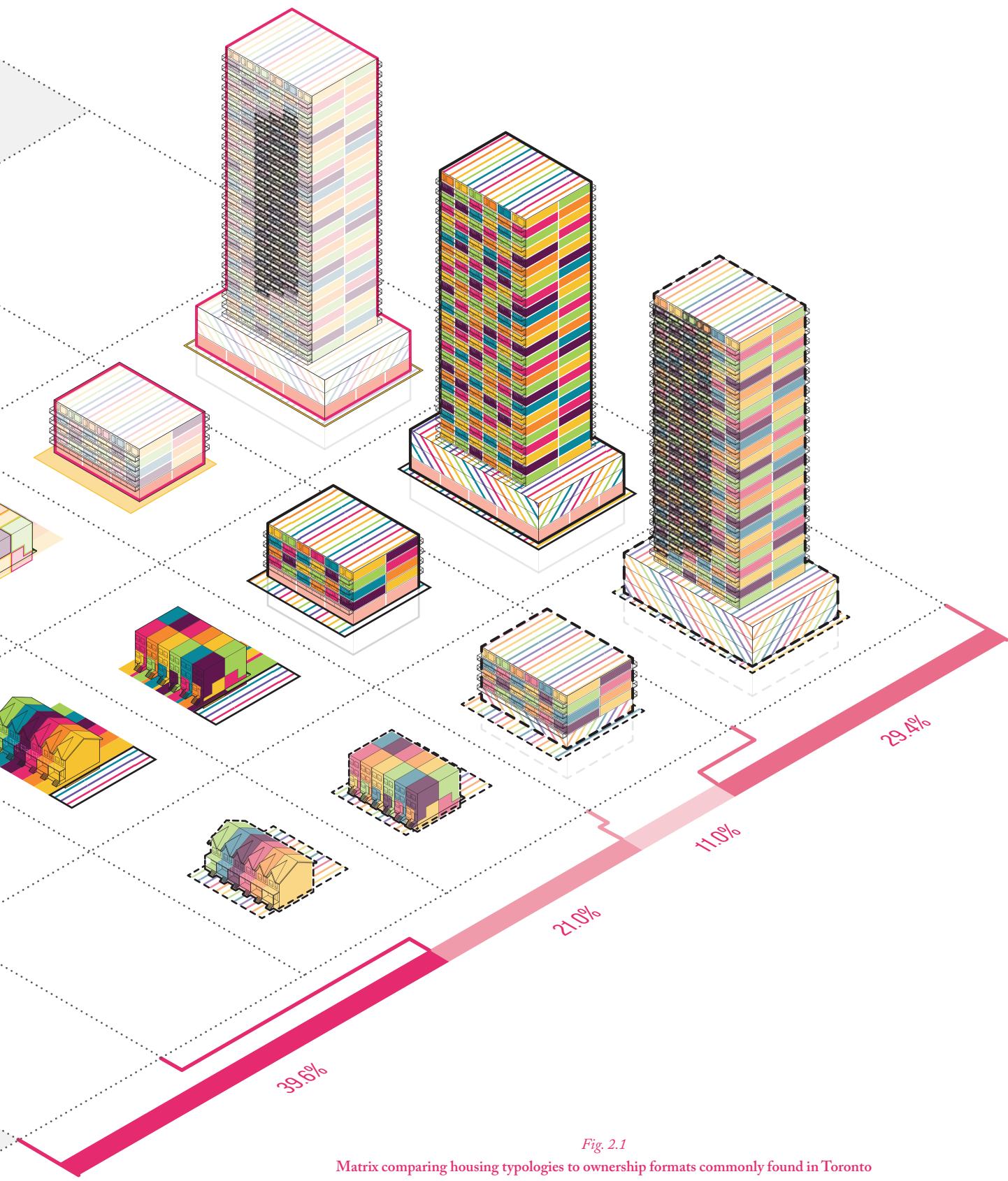


Fig. 2.1

**Matrix comparing housing typologies to ownership formats commonly found in Toronto**

Housing in Toronto exists in a number of formats, in various combinations of building type and ownership model. Single family detached houses and apartments in buildings over 5 storeys make up the bulk of private dwellings in Toronto.

## Existing Housing Options

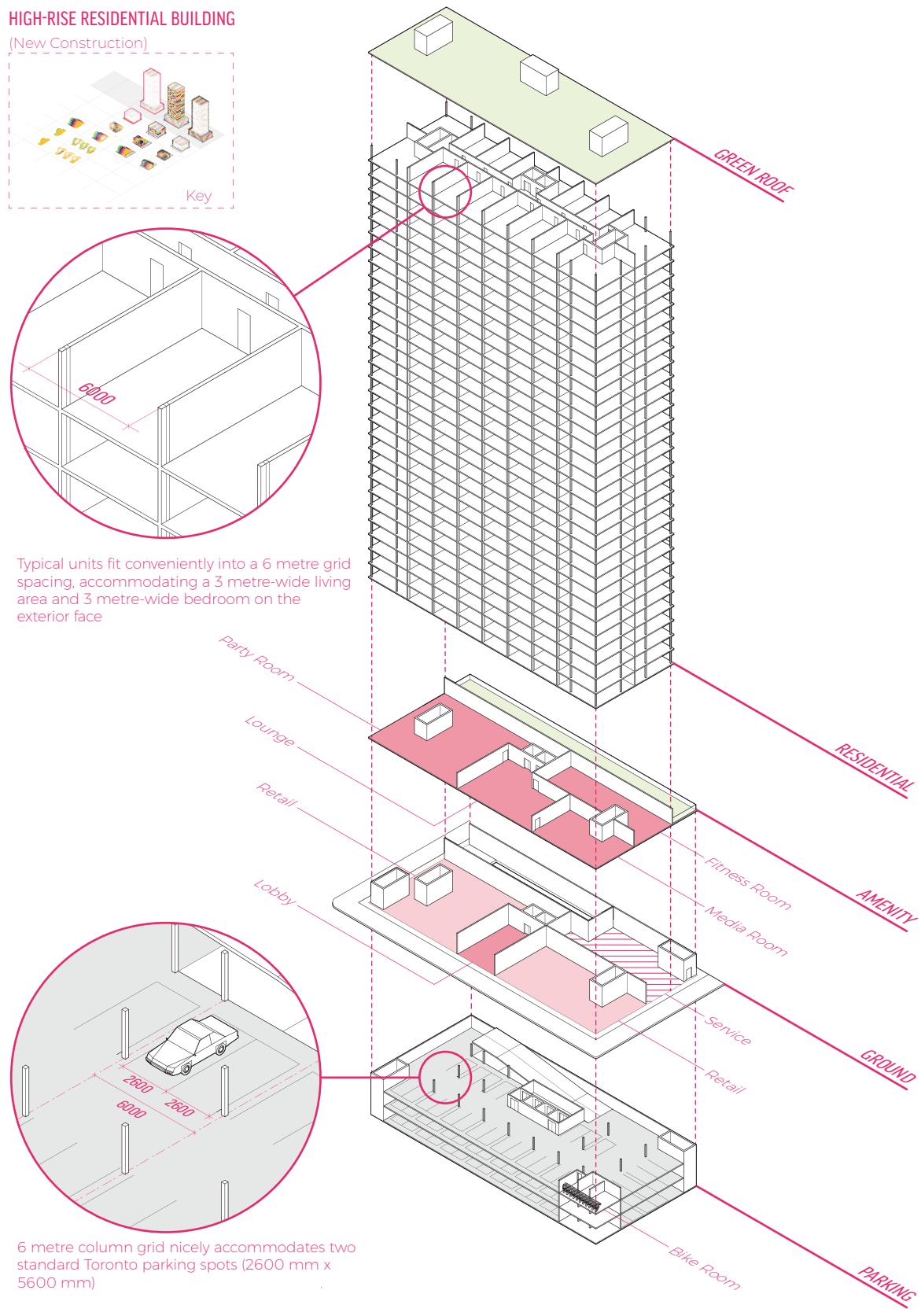
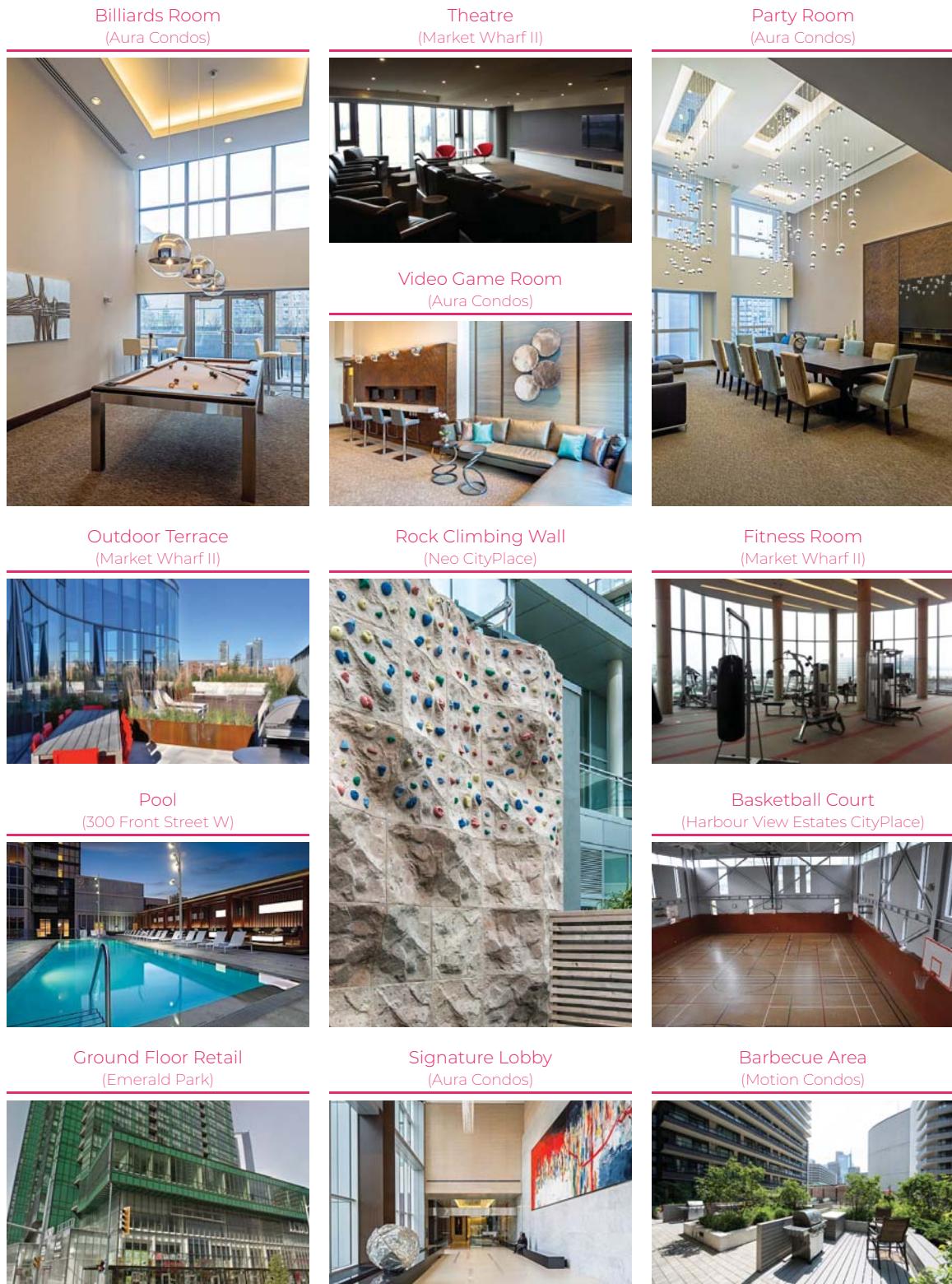


Fig. 2.2 Exploded axonometric of a typical new-construction high-rise residential building in Toronto



*Fig. 2.3 Amenities commonly found in new-construction high-rise residential buildings in Toronto*

## Existing Housing Options

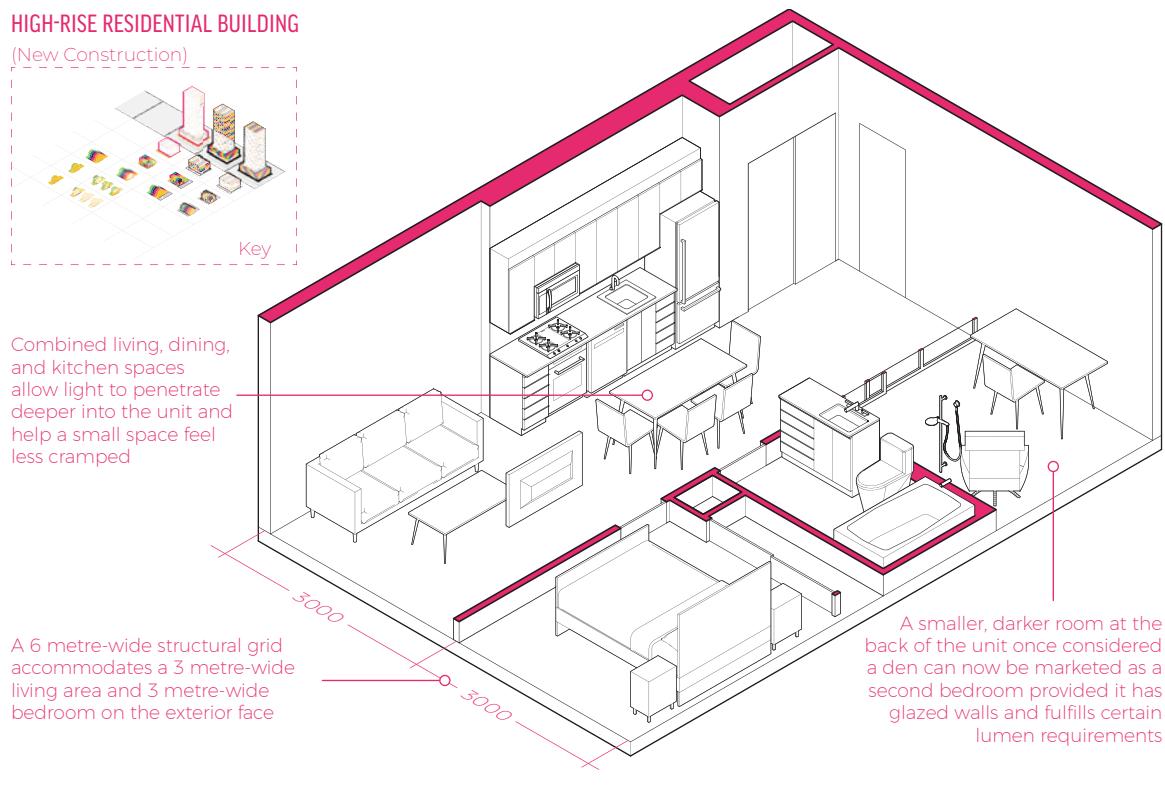


Fig. 2.4 Diagram of a typical unit in a new-construction high-rise residential building in Toronto

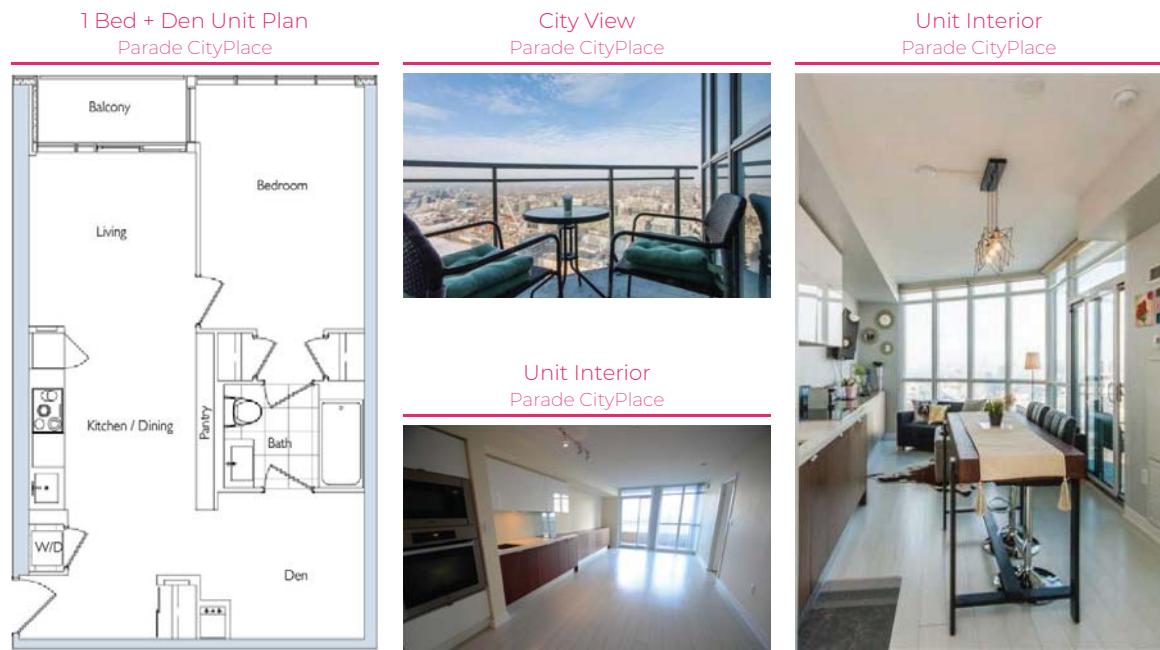


Fig. 2.5 Unit plan and views of a typical one-bedroom plus den unit at Parade CityPlace in downtown Toronto

Slight variations on this typical unit type are commonly found in most high-rise residential buildings built in Toronto in the past decade. Long and narrow units leave room for a compact single-wall kitchen and windows at one end.

## MID-RISE RESIDENTIAL BUILDING

(New Construction)

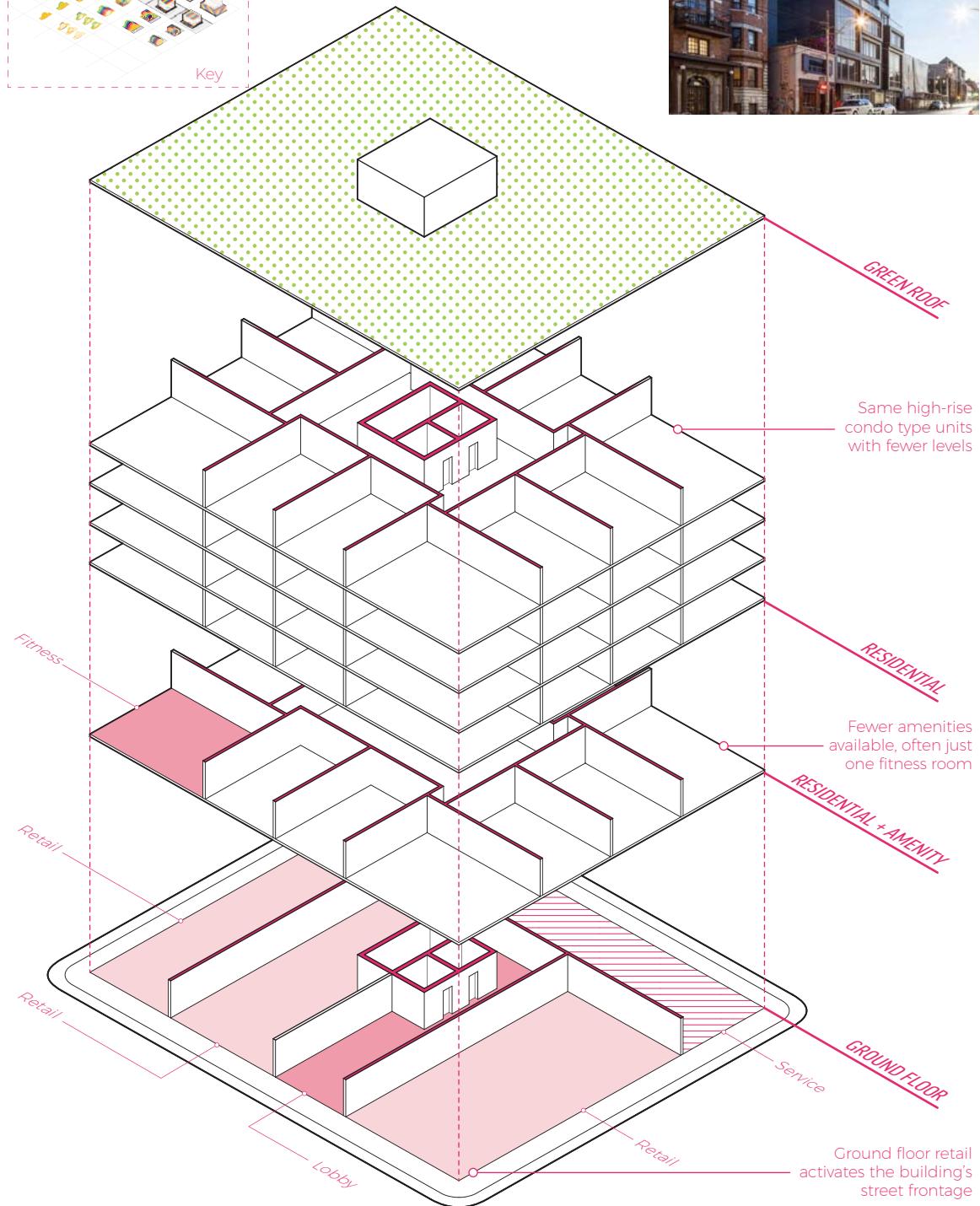
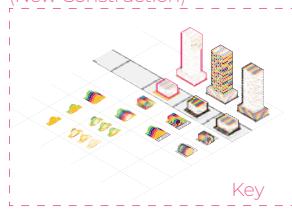


Fig. 2.6 Exploded axonometric of a typical new-construction mid-rise residential building in Toronto

Mid-rise buildings have become more common in new construction as a response to the growing population in the city, adding gentle density to neighbourhoods just outside the downtown core. Their design resembles high-rise buildings but usually have fewer amenities and lower maintenance fees.

## Existing Housing Options

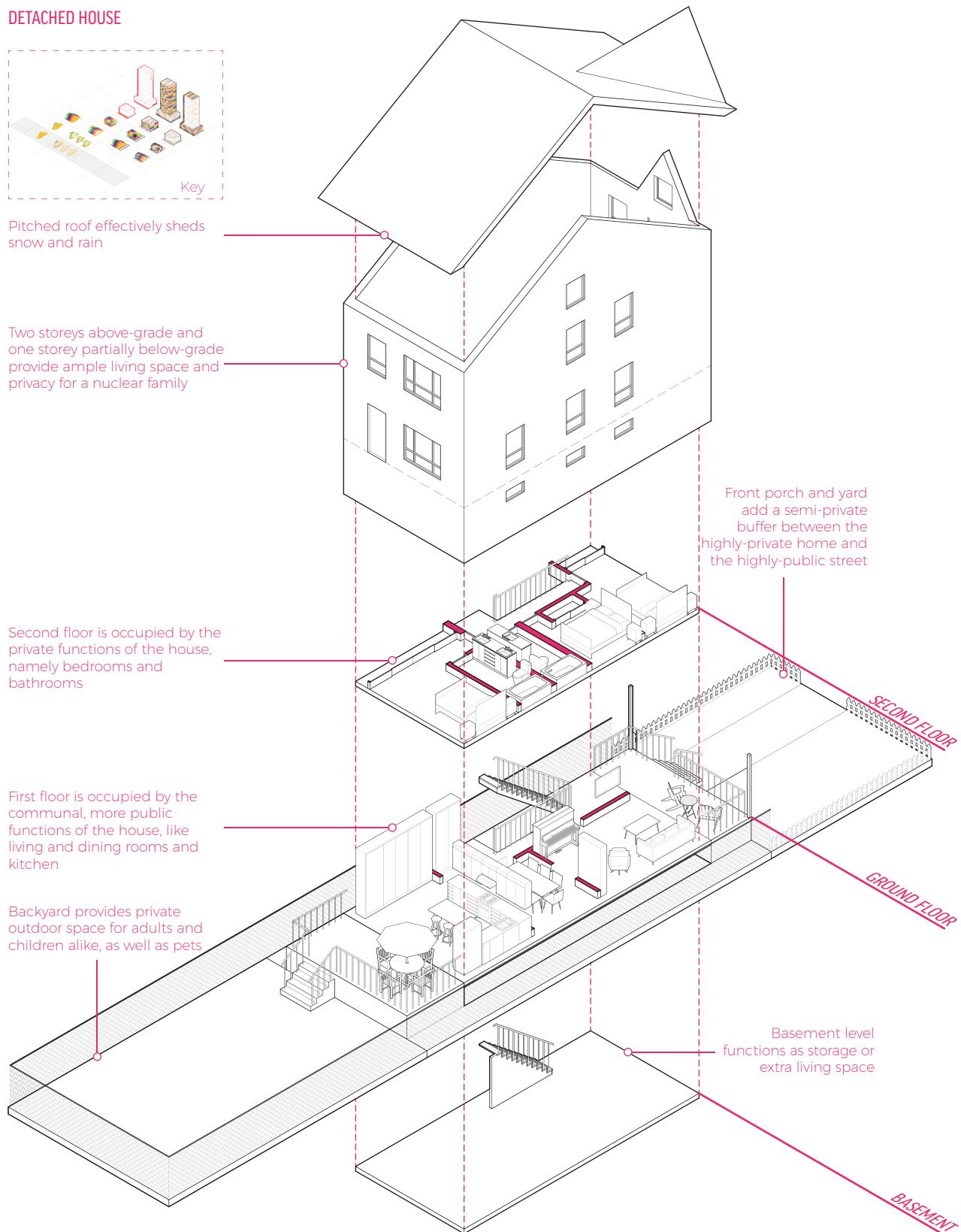
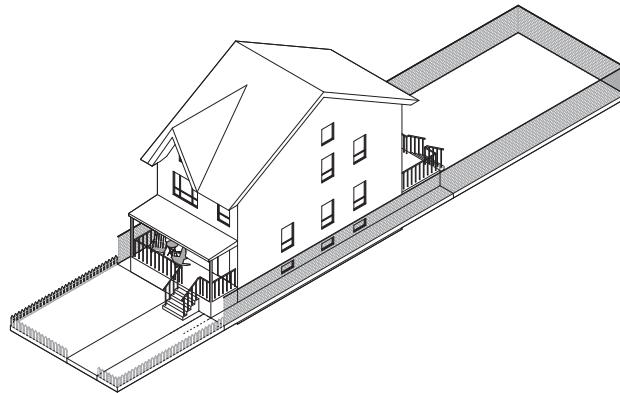


Fig. 2.7 Exploded axonometric of a typical single-family detached house in downtown Toronto



ADVANTAGES	DISADVANTAGES	
<ul style="list-style-type: none"> <li>+ Each house is autonomous and is buffered on all sides from neighbours for privacy</li> <li>+ Usually includes at least some private outdoor space, like front and back yards</li> <li>+ Is often multi-storeyed, containing ample living space for a nuclear or even multi-generational family</li> <li>+ All sides of the house contain windows, allowing greater freedom in laying out interiors</li> </ul>	<ul style="list-style-type: none"> <li>- Requires much more time and money invested in maintenance and upkeep</li> <li>- Usually not built with universal design in mind, posing obstacles to those with disabilities of all kinds</li> <li>- More costly in utilities, property tax, and mortgage</li> <li>- Does not have any added amenities</li> <li>- Low-density by definition</li> </ul>	<p>Detached houses in Toronto exist in a range of styles varying by neighbourhood and era. Older parts of the city, particularly downtown, are characterized by the bay-and-gable style - tall, long, and narrow brick houses sitting on long and narrow lots. Mid- to late-century houses in the more suburban areas of the city are wider, sometimes split-level, and sit on lots that are slightly more square. Newer construction of detached homes is concentrated in the suburbs and Greater Toronto Area, especially in affluent neighbourhoods, resulting in large and stylistically ambiguous homes.</p>

Fig. 2.8 Comparison of advantages and disadvantages of living in a single-family detached house

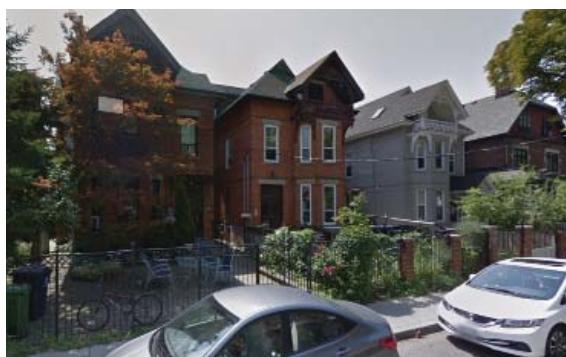
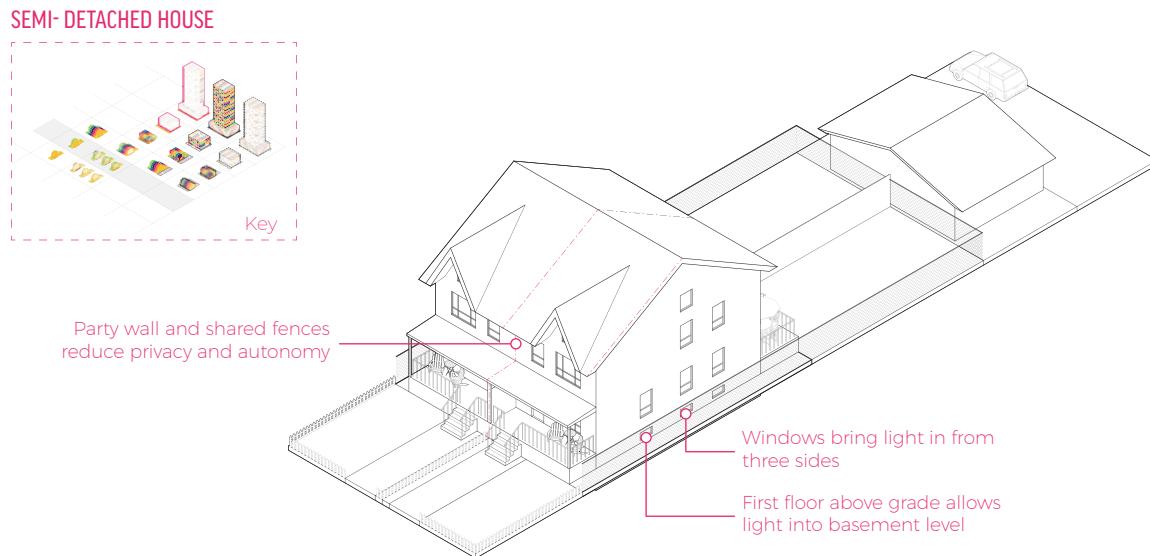


Fig. 2.9 Single-family detached house in Chinatown



Fig. 2.10 Single-family detached house in North York

## Existing Housing Options



ADVANTAGES	DISADVANTAGES
+ Slightly higher-density than detached homes	- Less acoustic privacy
+ Slightly smaller size and shared party wall means less upkeep and lower heating/cooling costs than detached homes	- More coordination / negotiation required with adjacent neighbour regarding renovations, maintenance issues
+ Better value for floor area than detached homes due to savings in construction cost and lower level of autonomy and independence	- Higher potential for fire transfer between units, especially in older houses

Older semi-detached houses are common in the downtown area. Occupying the same long and narrow lots, they are typologically similar but offer slightly greater density.

Fig. 2.11 Comparison of advantages and disadvantages of living in a semi-detached house



Fig. 2.12 Semi-detached house in Trinity Bellwoods



Fig. 2.13 Semi-detached house in York

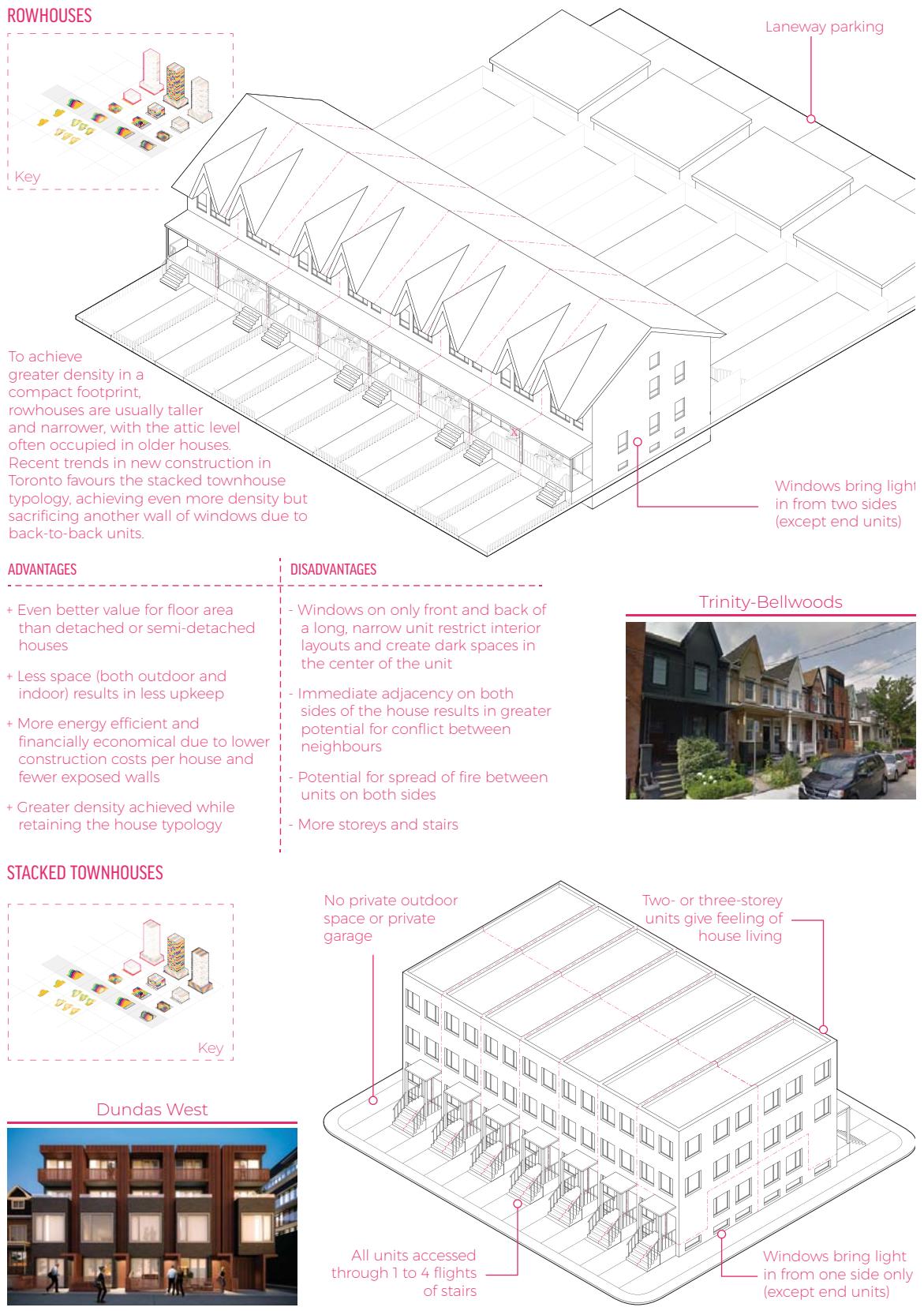


Fig. 2.14 Comparison of advantages and disadvantages of rowhouses and stacked townhouses

## Existing Housing Options

### FREEHOLD OWNERSHIP



#### ADVANTAGES

- + Full control over modifications to your home
- + Outdoor spaces owned and occupied privately
- + No maintenance fees or shared expenses with others
- + Ownership in perpetuity, less worry over losing tenancy

#### DISADVANTAGES

- Typically most expensive option
- All maintenance responsibilities fall on owner
- No additional amenities
- Many costs associated with moving/selling property

	HOME	AMENITY
OWNER		
OCCUPANT		

Fig. 2.15 Diagram of freehold ownership

### EMERSON AVE SEMI-DETACHED HOUSE

Toronto, ON

\$ 949,000 (4 Bed 2 Bath)

Many of the freehold houses for sale in downtown Toronto are semi-detached. In owning and occupying a semi-detached house, the owner can experience house living in a slightly higher-density downtown setting.

Exterior view



Backyard



Living area



Porch



Fig. 2.16 Freehold semi-detached house

**RIVERDALE TOWNHOUSE**

Toronto, ON

\$899,000 (3 Bed 3 Bath)

Seen as a more cost-effective option to owning a house, townhouses are slightly higher-density and more economical to construct, resulting in lower prices. Freehold townhouses are more rare than condominium townhouses in new construction. Although there is more freedom to make alterations to your home, maintenance of shared elements like walls or driveways require negotiation with neighbours.

Exterior view



Laneway Garage

**HILLCREST VILLAGE BUNGALOW**

Toronto, ON

\$ 1,538,000 (4 Bed 3 Bath)

Modest bungalows are more common outside the downtown core. Freehold ownership of this type of property is a dream for many families, especially with older adults, as the lack of stairs allows for greater accessibility. However, ownership also entails extensive upkeep.

Exterior view



Backyard



Kitchen



Living area

**HOGGS HOLLOW HOUSE**

Toronto, ON

\$ 6,980,000 (7 Bed 5 Bath)

Home to many affluent neighbourhoods, especially in midtown and the northern suburbs, Toronto has many large luxury homes on the market at any given time. Older homes are often torn down to make room for these expansive houses to be sold by the builder. Most homes of this size are owned outright, rather than rented. Property taxes are also astronomical.

Exterior view



Backyard



Kitchen



Living area



Fig. 2.17 Freehold houses of different types for sale in Toronto

## Existing Housing Options

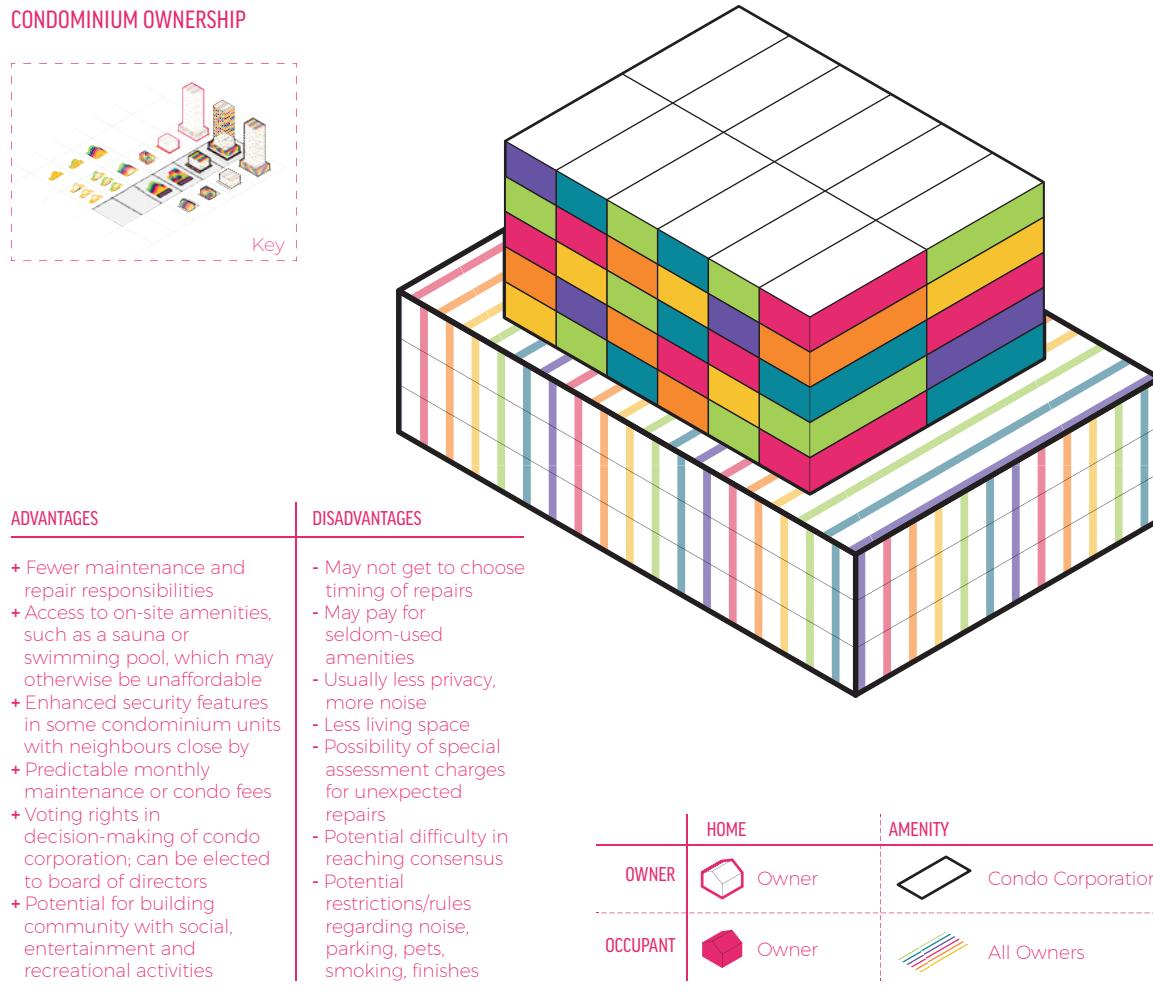


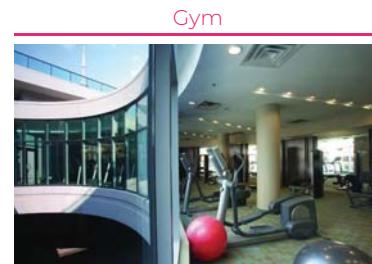
Fig. 2.18 Diagram of condominium ownership

### Pinnacle Centre I

Toronto, ON

\$524,900 + \$407/mo + taxes (1 Bed 1 Bath)

Many super high-density developments like CityPlace heavily market their extensive amenities as added value, compensating for small living spaces with gyms, pools, game rooms, etc.



### Unit plan



### Unit interior view



### Pool

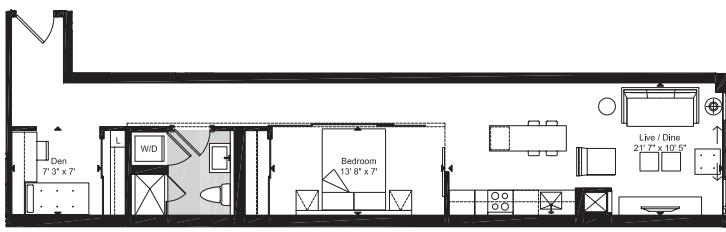
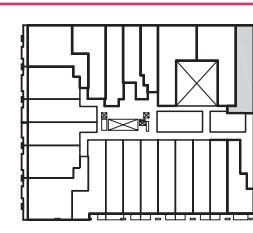
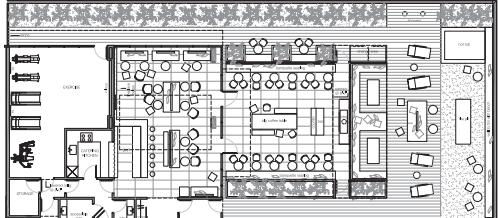


Fig. 2.19 High-rise condominium in downtown Toronto

## ART CONDOS

Toronto, ON

This mid-rise Queen West condo development is in a desirable location and provides unique, artist-oriented amenities, but like their high-rise counterparts, compromise on living space.

Exterior view	1 Bedroom + Den unit plan	
		
Kitchen	Bedroom	Level 2 Key Plan
		
Amenity view	Amenity area (Level 5)	Living Area
		

## 570 WELLINGTON

Toronto, ON

\$929,900 + \$1,013.43/mo + taxes (2 Bed 2 Bath)

Stand-alone townhouse complexes are often owned in condominium format, with an overseeing managing company that may control modifications to homes and upkeep of shared amenities. Some townhouses are built as part of a larger high-rise development and can share their amenities.

Townhouse exterior view

Townhouse interior view

Shared green space

Shared pool


*Fig. 2.20 Mid-rise and townhouse condominiums in downtown Toronto*

## Existing Housing Options

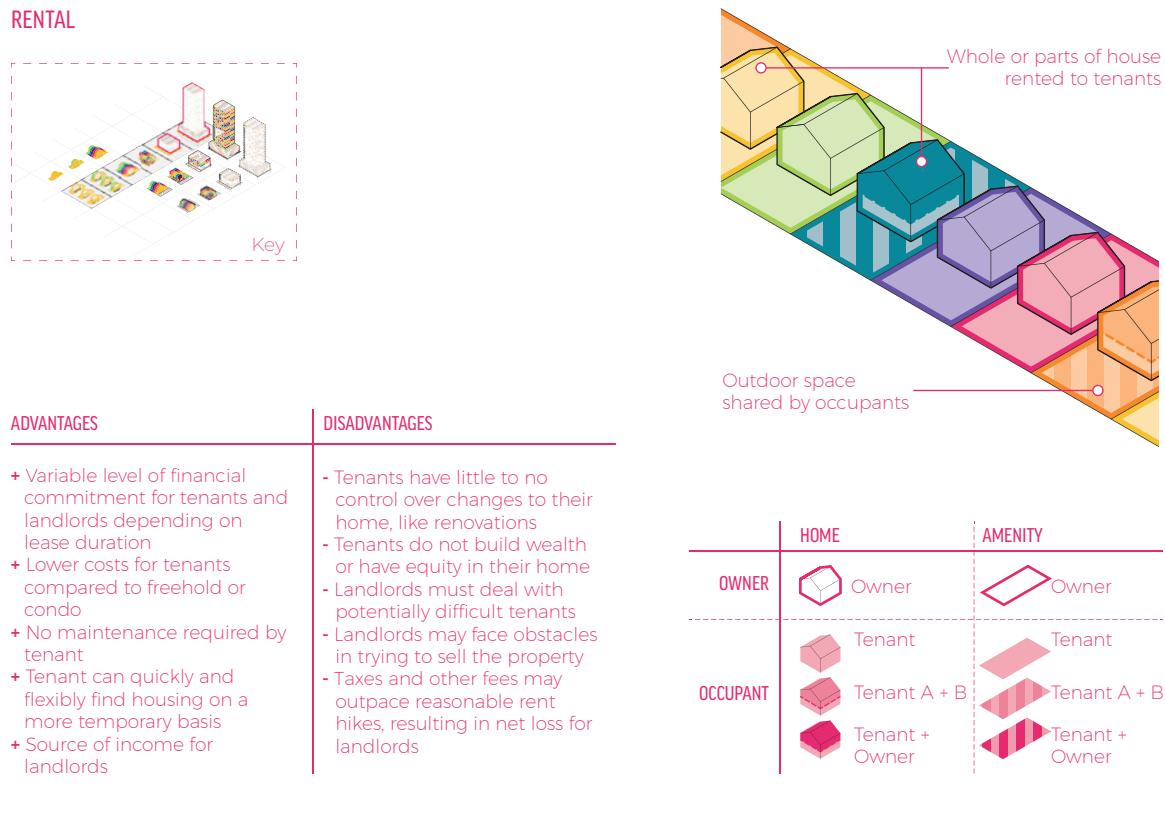


Fig. 2.21 Diagram of rental tenancy

## MAPLE LEAF SQUARE

Toronto, ON

\$1950 (1 Bed 1 Bath)

Rental units in high-rise condominiums are perhaps the most common typology, with tenants gaining full access to their own unit as well as any amenities. For those looking to live in central locations, perhaps near their place of work, this is a popular choice. However, prices can be comparable to a mortgage without building equity. High-rise rental is usually associated with younger professionals.

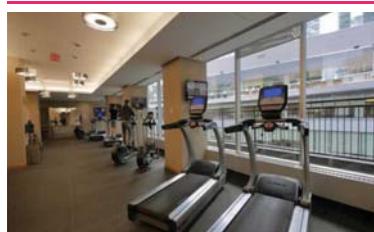
Building exterior view



Unit plan



Gym



Unit interior view



Fig. 2.22 High-rise rental units in downtown Toronto

**THOMPSON RESIDENCES**

Toronto, ON

\$1850 (1 Bed 1 Bath)

Mid-rise rentals typically have fewer amenities available as a consequence of the scale of the project, with some exceptions. They are often located slightly outside the downtown core but can be more affordable and offer a quieter community.

**Building exterior****Pool****Unit interior****LESLIEVILLE DUPLEX**

Toronto, ON

\$2100 (2 Bed 2 Bath)

Detached or semi-detached houses can be subdivided into duplexes or triplexes and rented out individually, as is common with many larger homes in older neighbourhoods. Households needing more space can look to slightly less central neighbourhoods for more living space at a price comparable to living in a smaller unit in the downtown core.

**Building exterior****Dining area****Kitchen**

*Fig. 2.23 Mid-rise and semi-detached duplex rental properties in Toronto*

## Existing Housing Options

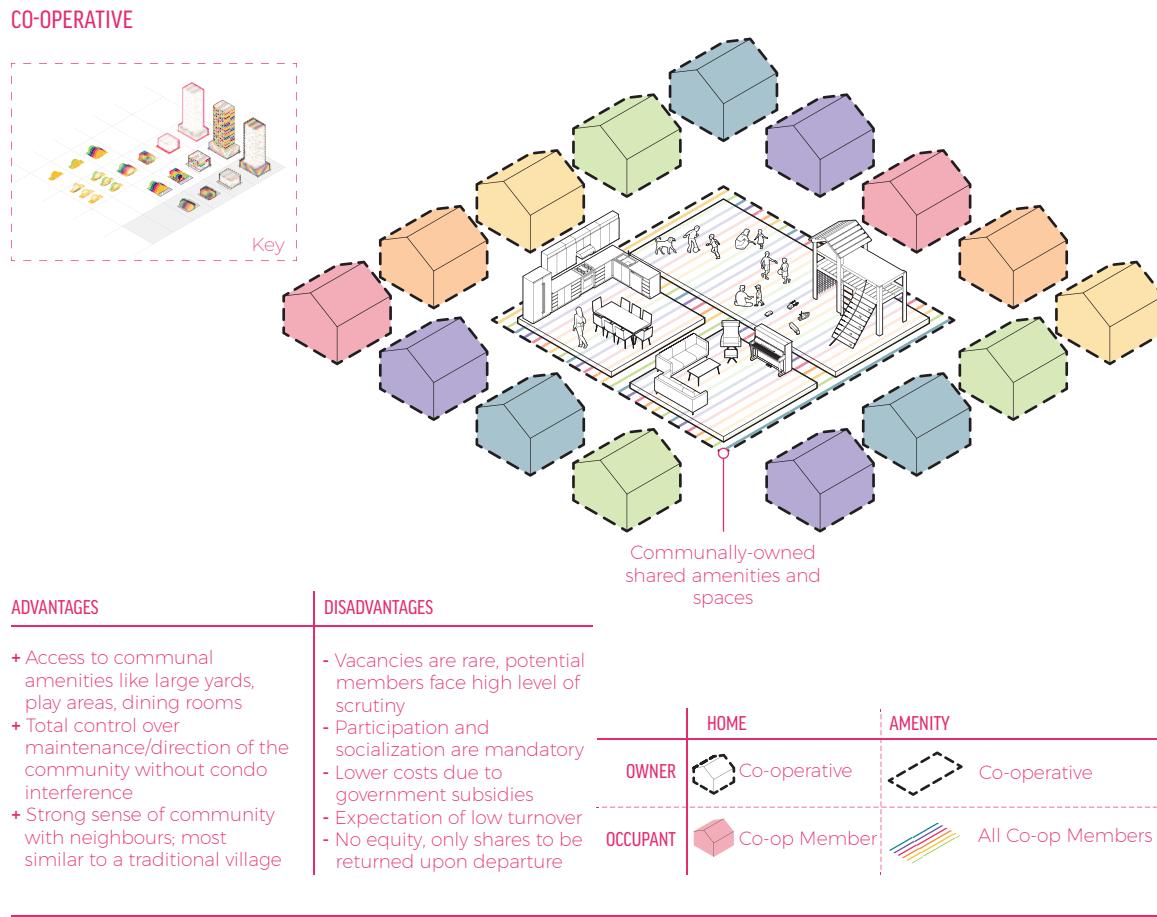


Fig. 2.24 Diagram of co-operative housing tenancy

### LORE KRILL HOUSING CO-OPERATIVE

Vancouver, BC

\$1121/mo (2 Bed 1 Bath)

Due to the communal nature of co-op housing and through the assistance of government funding, co-op housing developments tend to be designed with heavy involvement from residents and are not designed to generate maximum profit as many condominiums and freehold properties are. This particular co-op in Vancouver provides ample daylighting and a courtyard garden, offering a generous living space at a significantly below-market rate.

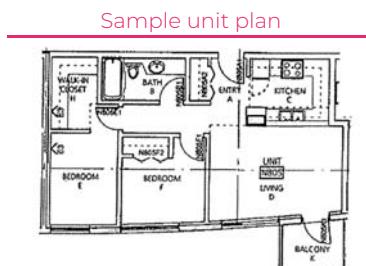


Fig. 2.25 Co-op housing in Vancouver

**60 RICHMOND**

Toronto, ON

One of the very few purpose-built co-op projects constructed in Toronto in the past decade, 60 Richmond provides affordable, quality housing to the local union of hospitality workers. Large openings in the overall massing bring light into the core of the building to bridges and communal gardens.

**Unit interior****Exterior view****Courtyard garden****HAZELBURN CO-OP**

Toronto, ON

\$1377/mo (1 Bed 1 Bath)

With the input of residents, co-ops can be designed to include specific amenities desired by the community. In this particular development, a workshop with power tools and a shared rooftop space.

**Exterior view****Shared rooftop****Sample plan****Shared workshop****WINDMILL LINE CO-OP**

Toronto, ON

\$1267/mo

The priorities of this co-op were to have a rooftop vegetable garden, tended communally by volunteer members, and to have corridors designed to mimic a typical residential street with stairs and personalized entrance doors.

**Exterior view****Corridor****Rooftop garden**

*Fig. 2.26 Co-op housing in Toronto*

## Existing Housing Options

### CO-HOUSING

#### ADVANTAGES

- + Access to communal amenities like large yards, play areas, dining rooms
- + Total control over maintenance/direction of the community without condo interference
- + Strong sense of community with neighbours; most similar to a traditional village
- + Wealth and equity built over time

#### DISADVANTAGES

- Grassroots movements have difficult time procuring a number of neighbouring homes with appropriate amenity space
- Participation and socialization are mandatory
- Higher costs than freehold ownership due to membership/maintenance fees to finance shared amenities

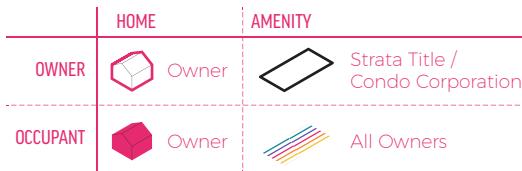
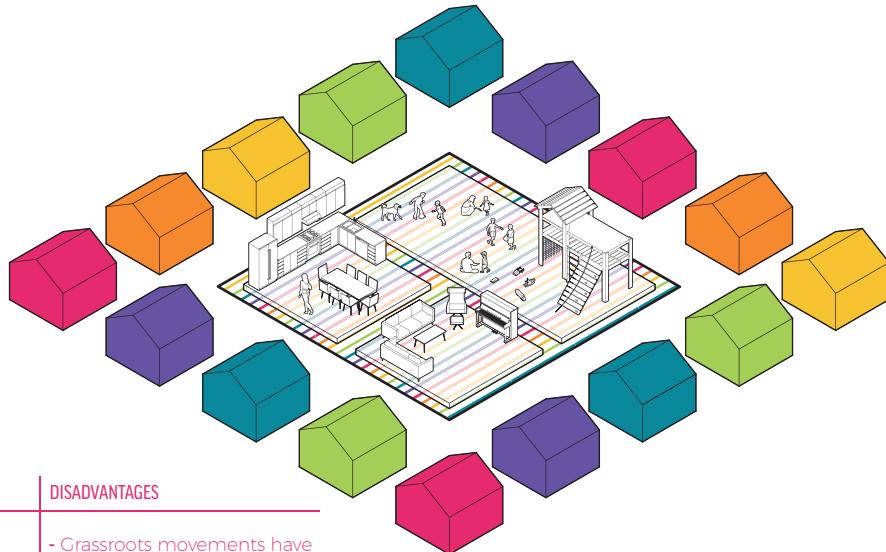


Fig. 2.27 Diagram of co-housing ownership

### TERRA FIRMA

Ottawa, ON

This co-housing community in Ottawa is comprised of two rowhouse complexes with an infill common house built in the gap between them. In the absence of more appropriate housing, residents found a close approximation of what they were searching for and adapted other elements to suit their needs. Conveniently, all units back onto a shared backyard and garden, providing children with a space to play and giving the community a convenient area for social activities.

Exterior view



Rear garden



Community potluck



Community potluck



Fig. 2.28 Co-housing community in Ottawa

### HARBOURSIDE SENIORS CO-HOUSING

Sooke, BC

This co-housing community is purpose-built for seniors co-housing, comprised of mid-rise residential buildings with balconies overlooking the water, as well as a large common house in which living, dining, and kitchen spaces are available to host community activities.



### PACIFIC GARDENS CO-HOUSING COMMUNITY

Nanaimo, BC

The design of this purpose-built co-housing community is meant to mimic the look of a typical residential street, with unit entrances opening on to a central atrium lit by skylights. Residents can occupy the areas in front of their units in the atrium as a front porch, facing their neighbours. Communal amenities like a garden, activity room, and dining room provide social spaces for residents to congregate.



*Fig. 2.29 Co-housing communities in BC*

## Existing Housing Options

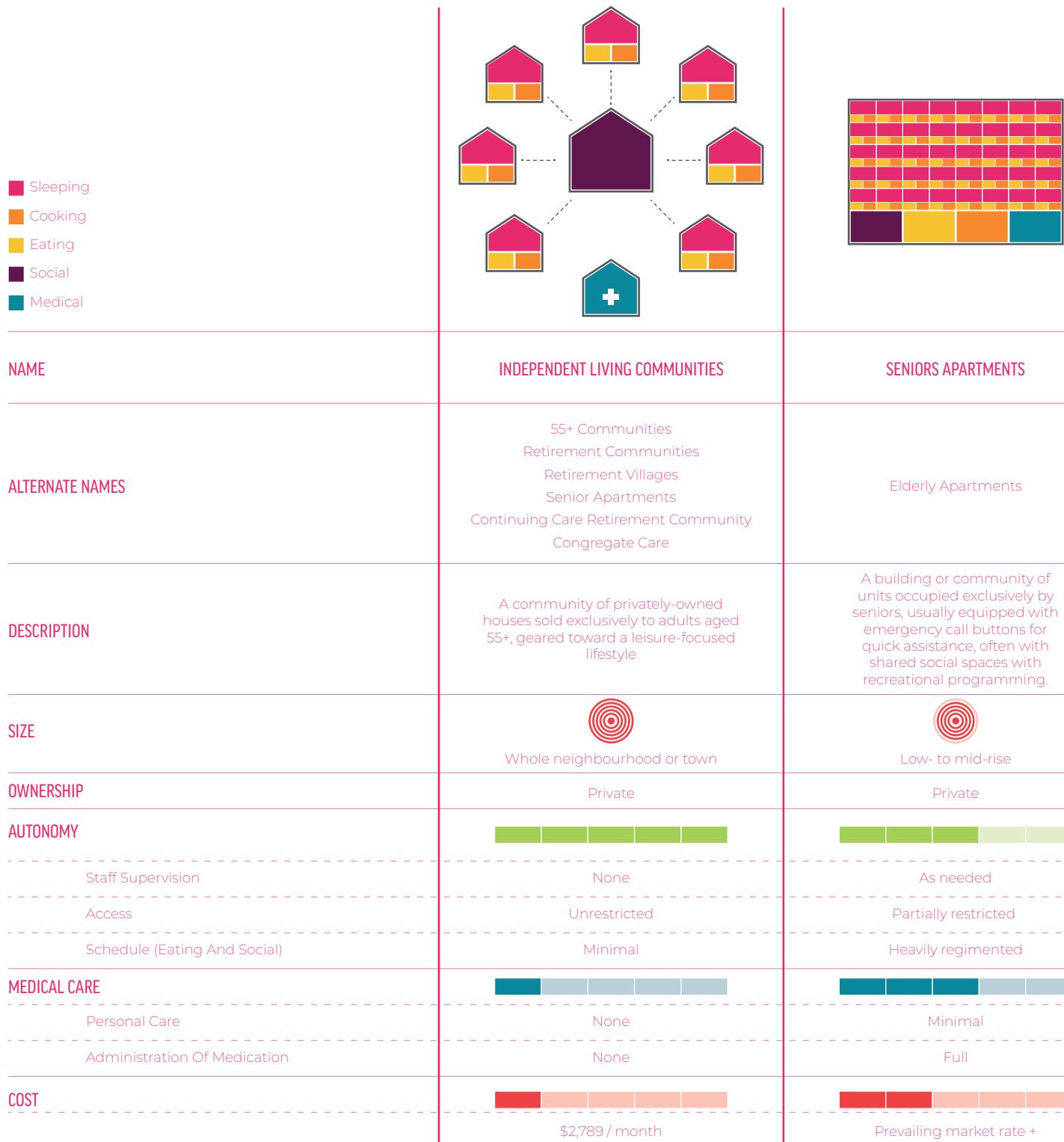
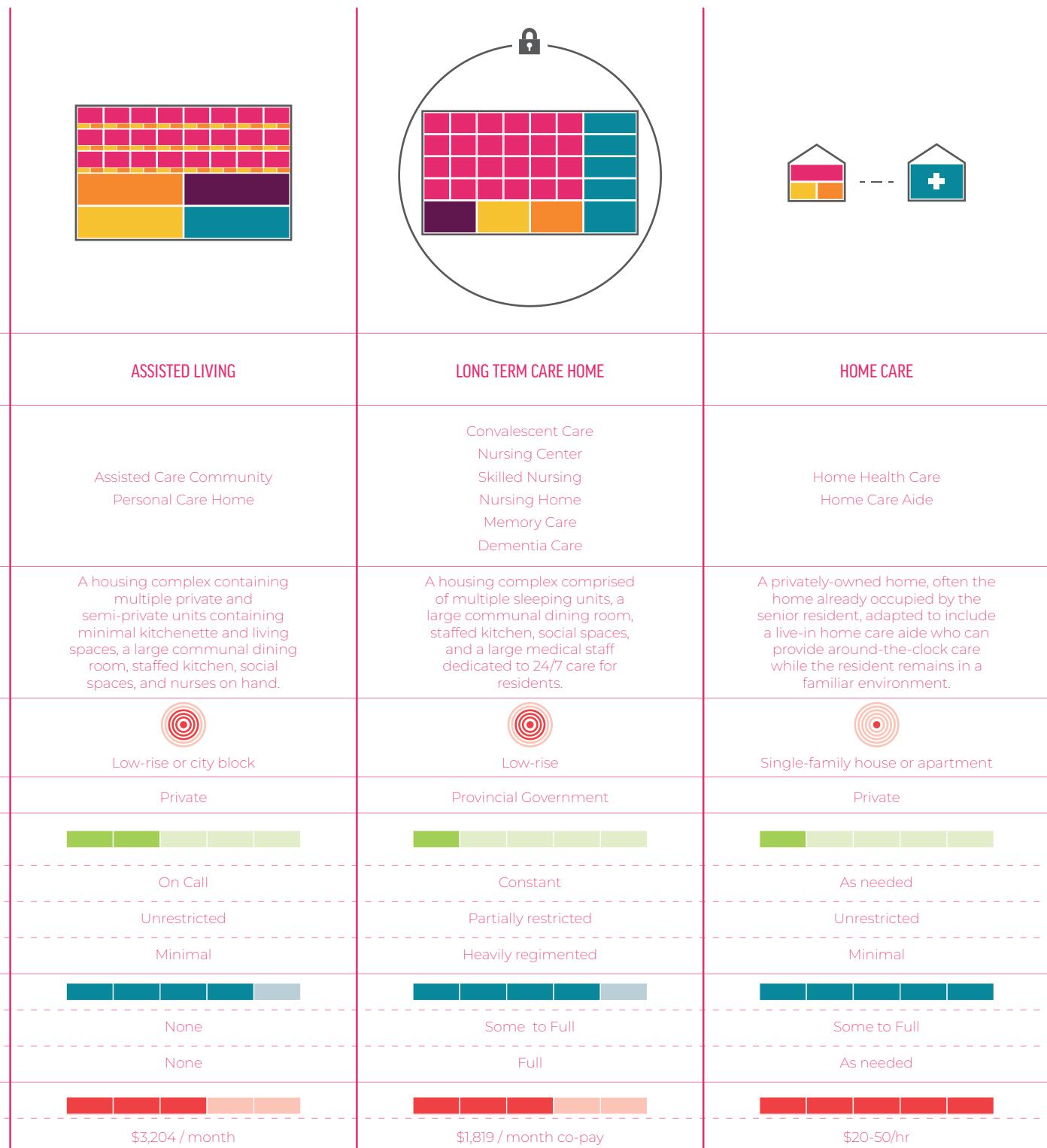


Fig.  
Chart comparing typical se



## Existing Housing Options

### INDEPENDENT LIVING COMMUNITIES

55+ Communities  
Retirement Communities  
Retirement Villages  
Senior Apartments  
Continuing Care Retirement Community  
Congregate Care

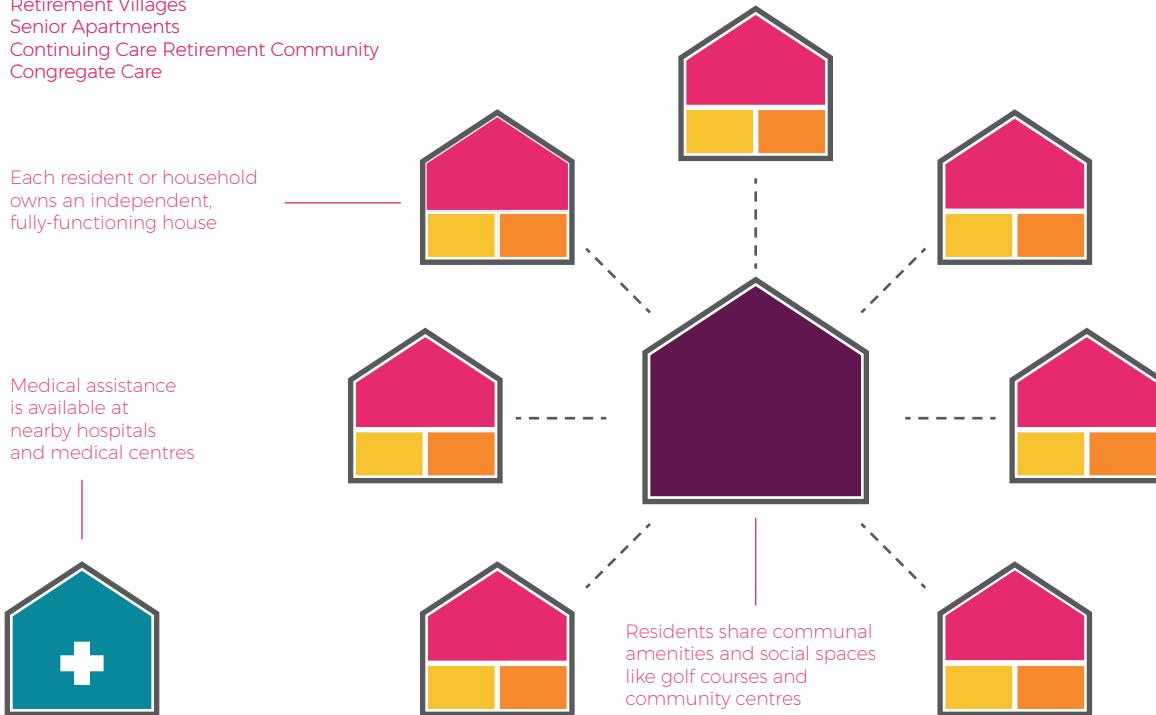


Fig. 2.31 Independent living community structure diagram

### SUN CITY

Arizona, USA

One of the first and most famous examples of independent living communities, Sun City is seniors living at the scale of an entire city. Houses are available for sale to people of at least 55 years of age. Residents are entitled to use of extensive golf courses, community centres, and other amenities in the town.

Typical residential street



Community centre



Fig. 2.32 Architecture of Sun City, Arizona

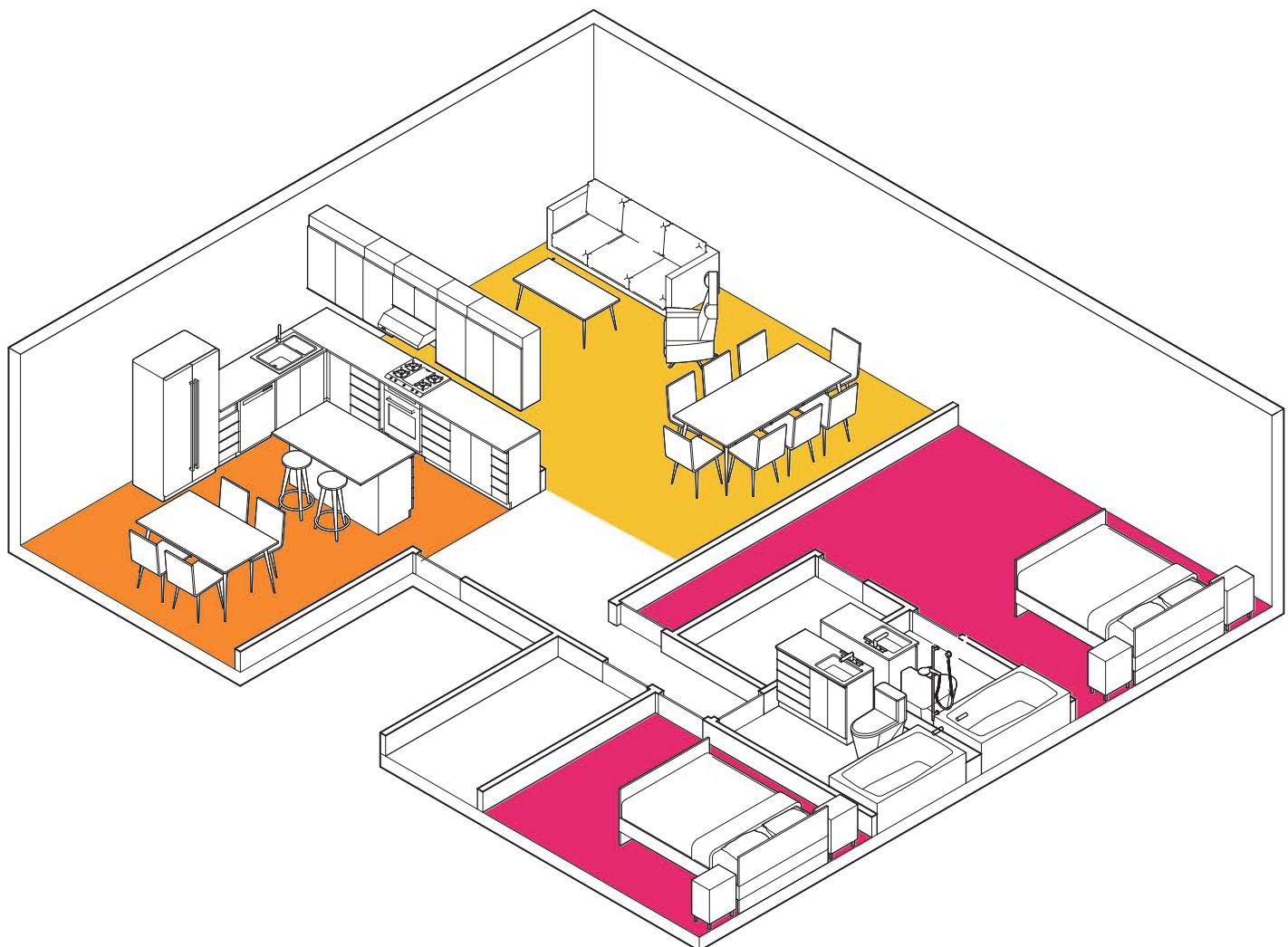


Fig. 2.33 Diagram of a hypothetical house in an independent living community

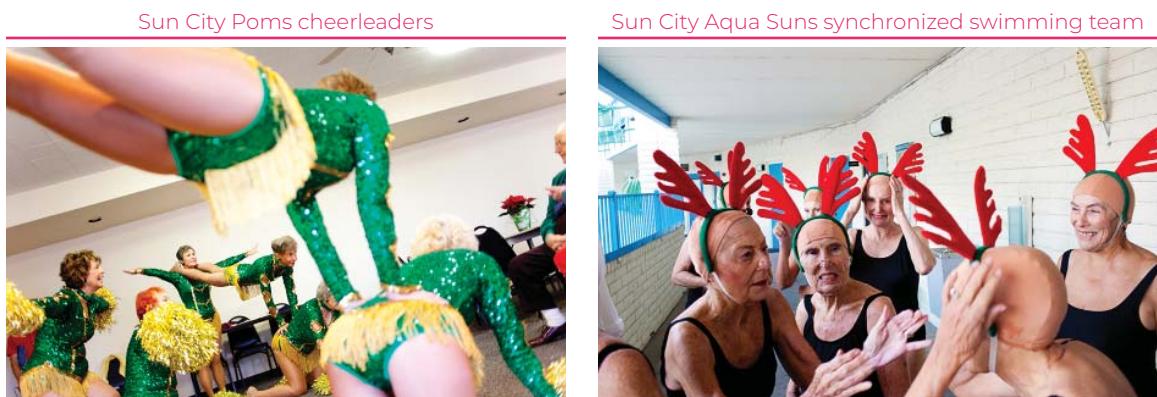
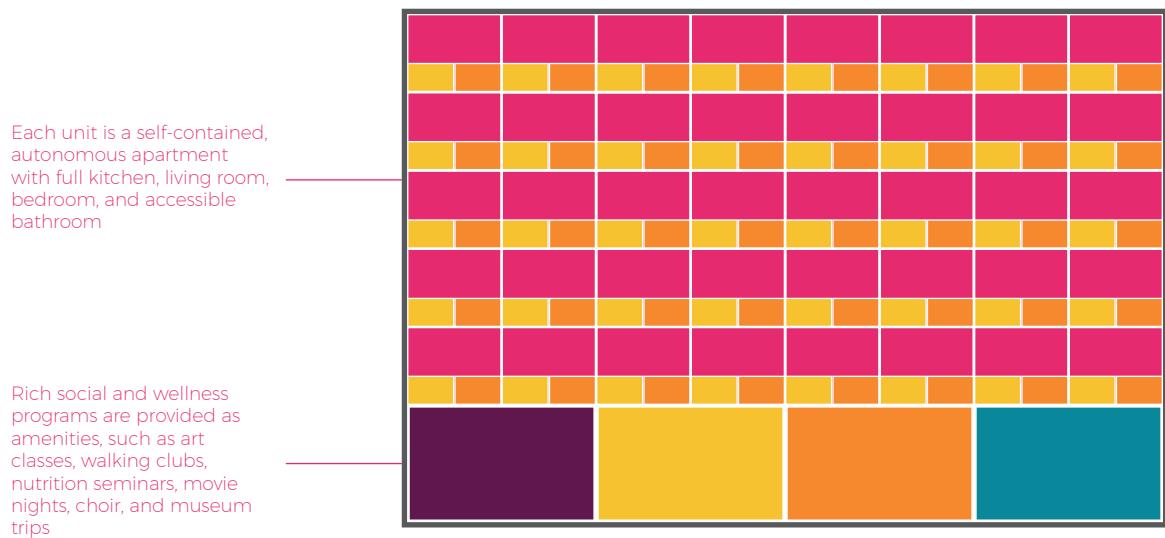


Fig. 2.34 Activities at Sun City, Arizona

## Existing Housing Options

### SENIORS APARTMENTS

#### Elderly Apartments

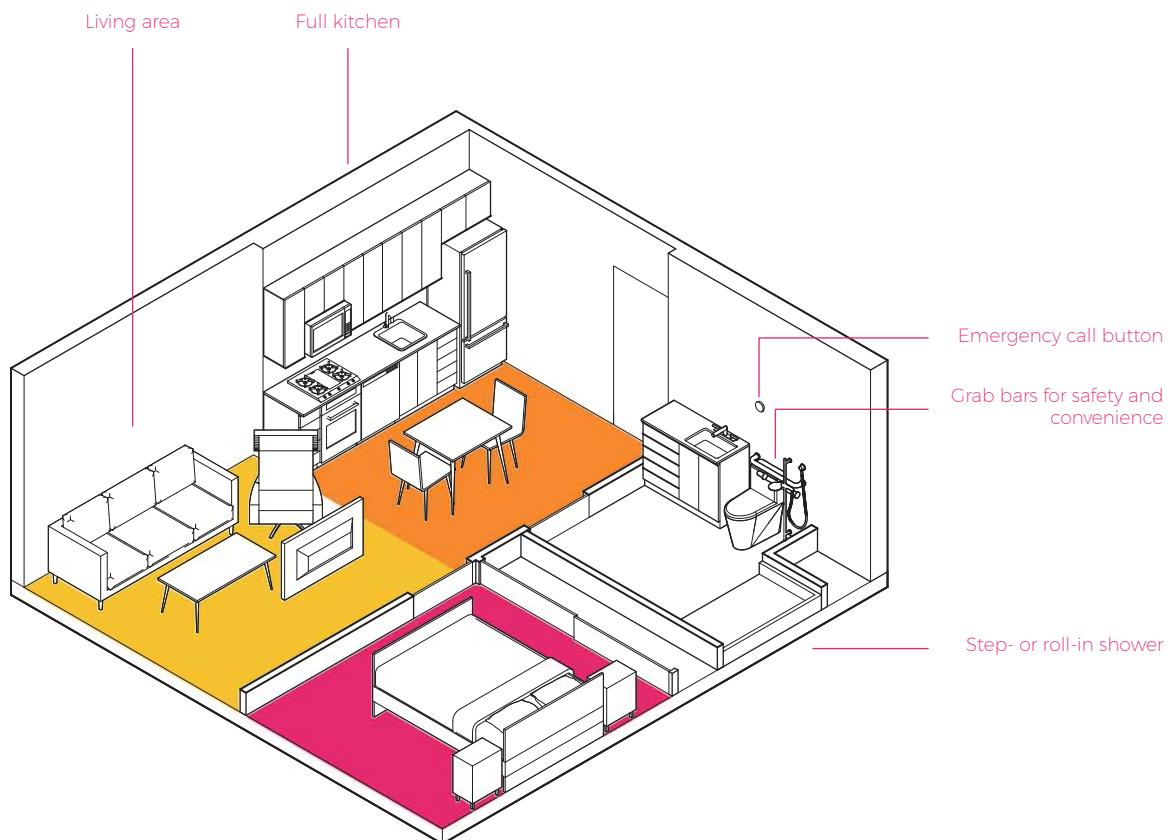


Each unit is a self-contained, autonomous apartment with full kitchen, living room, bedroom, and accessible bathroom

Rich social and wellness programs are provided as amenities, such as art classes, walking clubs, nutrition seminars, movie nights, choir, and museum trips

Communal dining areas are provided for occasional shared meals and social events

Limited medical assistance available through emergency call buttons in each unit



**VINTAGE GARDEN**

Scarborough, ON

This seniors' living community is targeted at Chinese-speaking retirees, specifically in the east end, looking to downsize to a condo-like setting with people of similar age. Apartments are laid out much in the same way as typical condos, but are built with grab bars and roll-in showers by default. Emergency services are available 24/7 at the touch of a button. Tai chi, mahjong, and other activities are open to residents.

**Phase I Building exterior****Library****Lobby****Lounge****Studio Unit Plan****1 Bedroom Unit Plan****2 Bedroom + Den Unit Plan****Default Bathroom Safety Features****Activity Room****Game Room**

*Fig. 2.35 Vintage Garden seniors' apartments in Scarborough*

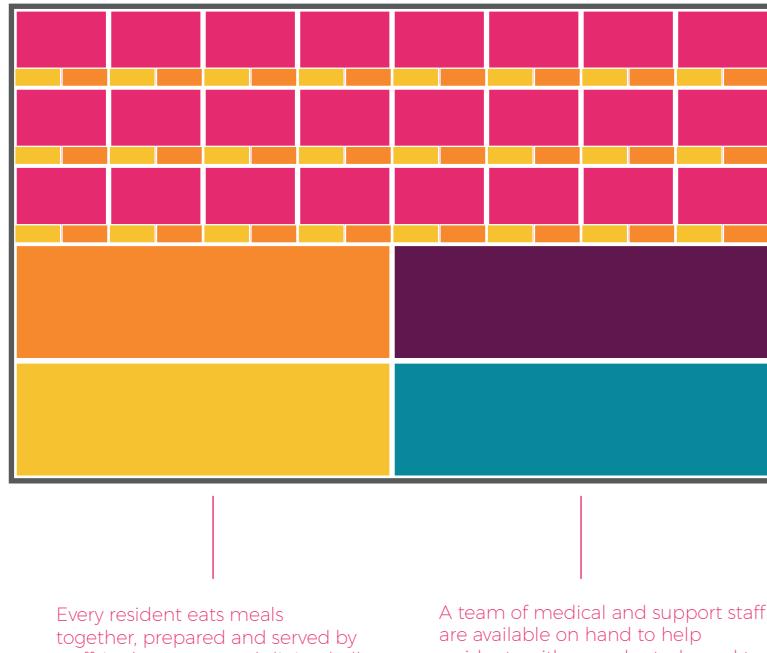
## Existing Housing Options

### ASSISTED LIVING

Assisted Care Community  
Personal Care Home

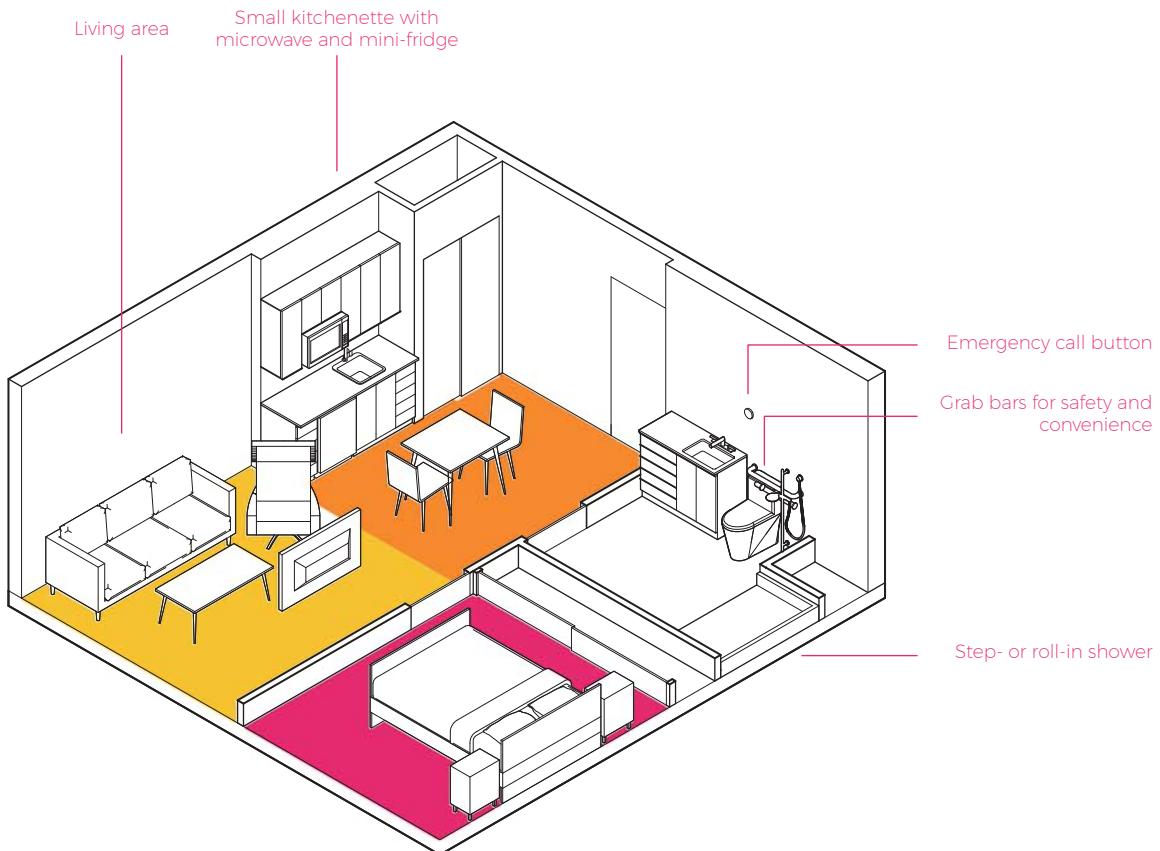
Each unit is like a hotel suite, primarily housing a sleeping area and bathroom, plus a small kitchenette and living area

Social and wellness programs are provided to encourage active lifestyles where possible



Every resident eats meals together, prepared and served by staff, in the communal dining hall

A team of medical and support staff are available on hand to help residents with everyday tasks and to administer food and social programs



**CHARTWELL AVONDALE**

Toronto, ON

This assisted living complex in Toronto is a four-storey multi-unit residential building, with amenities like a game room, movie room, and dining area on the ground floor. Suites are comprised of a bedroom, generous living room, and modest dining spaces with a small kitchenette. There are no kitchen appliances, as every resident dines in the communal dining hall with meals prepared by staff.

Game Room



## Building Exterior



Movie Room



Suite Living Area



Dining Room



Suite Bedroom



Fig. 2.36 Chartwell Avondale Retirement Residence in Toronto

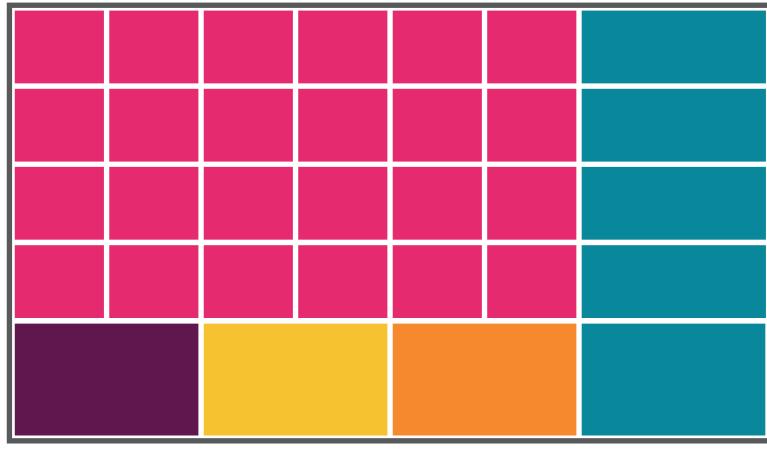
## Existing Housing Options

### NURSING HOME

Alzheimer's Care  
Memory Care  
Dementia Care  
Convalescent Care  
Nursing Center  
Skilled Nursing  
Long Term Care Facility

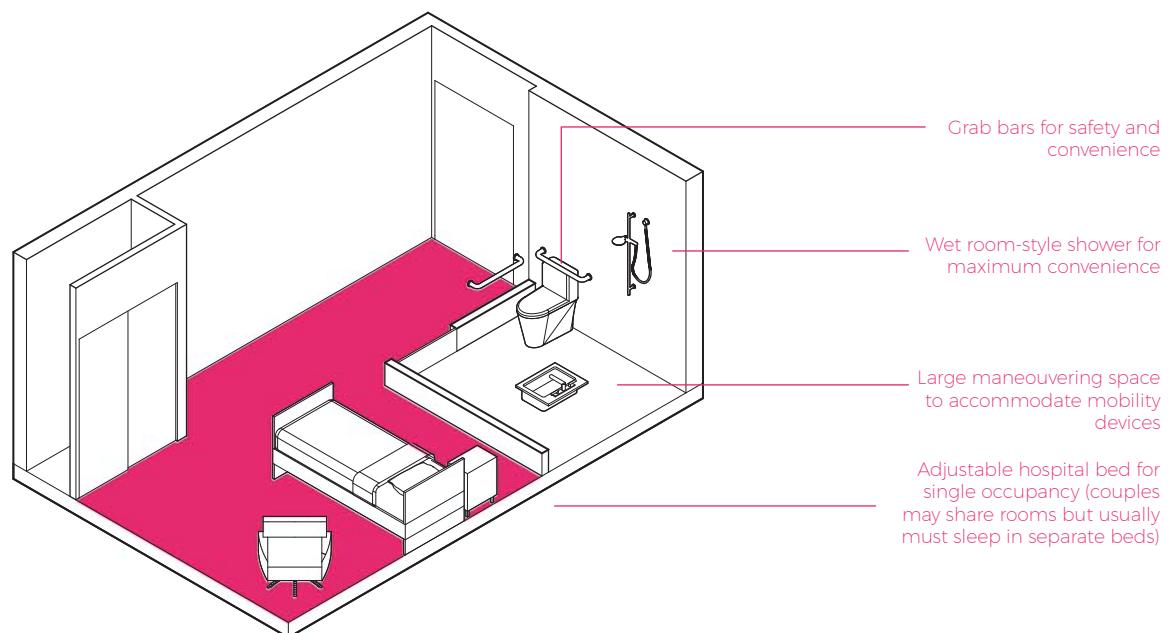
Each unit is like a patient room in a hospital, usually containing adjustable hospital beds, hookups for medical equipment, and sparse bathrooms

Social and wellness programs are provided to encourage active lifestyles where possible



Every resident eats meals together, prepared and served by staff, in the communal dining hall or delivered to their room if necessary

A large team of medical and support staff are on hand to help residents with all tasks, often with a nurse's station on every residential floor



**CHESTER VILLAGE**

Toronto, ON

This nursing home follows design principles typical to this type, resembling a hospital setting. There is a nurse's station on every floor, for more involved medical attention for residents. Couples can choose to have adjoining suites, using one side as a bedroom and the other as a living area. Residents are permitted to bring some of the own furniture, as well as approved pets. Game rooms, living areas, and physiotherapy are also available.

Resident with Cat



Building Exterior



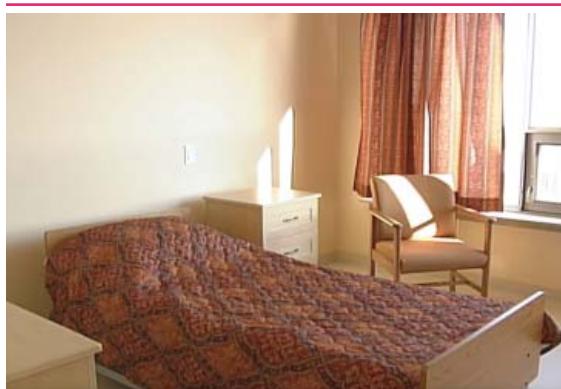
Physiotherapy



Game Room



Suite



Double Suite with Living Area



Fig. 2.37 Chester Village nursing home in Toronto

## Existing Housing Options

### HOME CARE

Community Nursing  
Community Rehabilitation  
End of Life Care  
Home Support Services

Seniors stay in their homes  
or move in with family



A team of community health specialists make regular home visits to provide medical support, allowing patients to remain in their homes during illness

Access ramp



Shower modified for accessibility



Mechanical patient lift



Kitchen with wheelchair knee space



Fig. 2.38 Common modifications to the home to accommodate home care







## INTERGENERATIONAL SOLUTIONS

## INTERGENERATIONAL SOLUTIONS

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Intergenerational exchange is every interaction or transaction, social or economic, between people of differing generations or ages. From informal interactions like a conversation between a university-aged waiter and an elderly customer, to institutionalized transactions like government-funded old age security programs, all constitute intergenerational exchange. Research scientist E.C. Hedberg of the University of Chicago defines it as “any transfer of material goods, money, or emotional support from able persons to those who need help within the same kin group but of different generation.”<sup>101</sup> While civilizations have always relied on the transfer of knowledge and wisdom from older generations to younger generations for survival, it is now becoming of utmost importance that a wider acceptance of intergenerational exchange and living be adopted in the mainstream. As populations worldwide age rapidly and become urbanized, generations will rely on each other more heavily for their respective strengths. Many academic departments and social programs have been founded in recent years devoted to the study of aging and the role of intergenerational exchange in the process of aging. The Stanford University Center on Longevity released a comprehensive paper in June 2016 entitled *Hidden In Plain Sight: How Intergenerational Relationships Can Transform Our Future* that outlines the ways in which intergenerational exchange can be a multi-faceted solution to many problems found in modern society. On one hand, today’s older adults are much healthier and able to contribute to society even in old age, yet are largely an untapped source of valuable support for younger generations:

Today’s aging population, the largest senior cohort the world has known, offers a potent synergy for society, and for youth specifically. The very attributes that older people possess – the often-overlooked gains that come with aging – are ideally attuned to key needs of today’s younger generation. Simply stated, older people’s qualities and their affinity for purpose and engagement position them to make critical contributions to the lives of youth who need help the most. At the same time, such engagement

fulfills older people's desire for a sense of meaning and purpose, which in turn promotes well-being. Mutually meaningful relationships develop for both old and young.<sup>02</sup>

On the other hand, many youth in today's society are in need of support from older role models for their personal and educational development. Beyond what can be learned in schools, especially within school systems that may be lacking due to poor funding, youth benefit greatly from the emotional and mental development fostered by the presence of positive adult influences. The obvious solution seems to be to put these two vulnerable groups together, creating a mutually beneficial relationship in which older people can continue to contribute to society and achieve personal fulfillment while youth can gain the mentorship and knowledge they need. By identifying the respective strengths and needs of older people and youth, then matching them together primarily in the form of volunteerism and outreach programs, meaningful and synergistic relationships can be forged.

#### *Strengths and Needs in Old Age*

According to the Stanford University report, perhaps the greatest strength of older people is their vast repository of knowledge and wisdom accumulated over decades of life experience. Older people tend to be able to reflect and make rational decisions more easily in the face of complex or emotional situations, with a particular regard for the future success of younger generations.<sup>03</sup> Their improved sense of perspective results in easier social interaction and more strategic navigation of their social environment. As their physical strength declines, they are able to harness their interpersonal skills to compensate for any shortcomings, creating a feeling of resilience through adaptation.<sup>04</sup> As older people become more aware of their limited time on earth, their focus shifts from future-planning to enjoying the present-day, nurturing the relationships that matter and doing the activities they enjoy most. Their emotions tend to be more stable and are overall positive, as they can more effectively tune out negative thoughts and annoyances. Older people tend to have more stable lives in general because they are no longer striving to make money and advance their careers, and are therefore more readily altruistic and generous with their time - a characteristic defined by Erik Erikson as "an interest in establishing and guiding the next generation."<sup>05</sup> Since many healthy older people are retired, they also have more time to dedicate to other people as well as themselves, which can be a highly valuable asset in many settings.

The needs of older adults may seem obvious because they often manifest physically, but they are often overlooked when they are emotional or mental in nature. Physically, older people may need more time, space,

and effort to get around and do everyday activities. Household chores that require intense physical strength and endurance are the first things an aging person might need help with, such as clearing gutters, vacuuming, and moving furniture. As health continues to decline, older people will need help with less physically intensive work as well, like cooking and cleaning. In cases of illness or limited mobility, some may need help in maintaining personal hygiene or feeding themselves. In addition to the physical limitations that come with old age, invisible afflictions like depression, anxiety, or grief can often be a significant source of concern for older adults. Some mental distress can stem from physical deterioration, which can cause feelings of helplessness or hopelessness; feelings of grief and pessimism can also result from the increasing loss of friends and loved ones. Older adults who lose their spouses can be especially susceptible to loneliness and grief, particularly if they choose to continue living alone in their marital home.

#### *Strengths and Needs in Youth*

The strengths of youth lie in their innate energy and enthusiasm. Young children are often exceptionally animated with an optimistic naivety that can be endearing to adults. They are enthusiastic and curious because they are seeing the world through fresh eyes, which can be contagiously exciting to weary adults. They tend to be talkative when in a comfortable setting, and interpret their environment in unexpected and inventive ways. Older children and teenagers can have skills and expertise that some adults do not, by virtue of having youth-oriented interests and up-to-date information about current trends. Youth can also be physically strong and have good stamina, potentially being quite valuable in an employment setting.

The needs exhibited by youth relate to their continuing development and maturation. Babies and young children still have physical needs, relying on adults to bathe, feed, and clothe them. They require continued supervision to ensure the safety of the child, as they have not yet developed the intuition to detect dangerous situations. They require intellectual stimulation for their mental growth, and physical activity for healthy development. In their teenage years, youth still require mental and physical challenges to continue their development, but also tend to be more emotionally unstable. Teenagers need to initiate and maintain positive interpersonal relationships, especially with adults who act as good role models and can help them work on hard and soft skills that will serve them in future careers. This is especially important in lower-income families, who are the most at risk; according to Harvard sociologist Mario Small, “There is a lot of research on the importance of skills like math and reading, but the truth is, as our economies become more service-oriented, the need for soft skills is as prevalent as ever, and those are the skills that people in poor neighborhoods often don’t have access to.”<sup>06</sup>

### *The Role of Adults In Between*

Although the topic of intergenerational exchange usually focuses heavily on relationships between very young and very old people, as does the Stanford report, adults in their twenties to sixties also play an important role in the formation of intergenerational networks. They have strengths that neither young nor old people may possess, such as financial earning power, influence, peak mental acuity, maximum physical strength especially in men in their thirties. Children and elderly rely on adults of working age as protectors and providers, as these are their greatest strengths. People in their early- to mid-adult years may seemingly have few needs compared to those in youth or old age, but the many pressures and obligations of modern life can become overwhelming. Those who choose to have children and have jobs outside the home are in need of childcare services, whether through group daycare programs or nannies and babysitters that work in the home, or through family members if they are available and willing to lend a hand. Childcare has become notoriously expensive in Canada - in Toronto, the median cost of daycare for infants to preschoolers ranges from \$1,150 to \$1,649 per month.<sup>07</sup> For the average Toronto family, where median household income in 2015 was \$78,280, the cost of care for just one child can be almost one third of the entire household's net income.<sup>08</sup> Some parents may wish to have the child's grandparents or other family members act as caregivers, however this can be difficult to coordinate depending on their proximity to one another, as many young couples choose to live closer to the downtown core for work while their parents may live farther away. With today's grandparents becoming healthier and more independent than their predecessors, they may also not want to commit to such full-time child care, as their own lives may still be active and vibrant. Beyond childcare needs, adults often lack free time outside of their work to cook nutritious and satisfying meals, clean and maintain their homes, sustain a lively social life, pursue hobbies, and care for their own mental and physical health.

### *Strategies for Intergenerational Exchange*

In many ways, young, middle, and older generations can fit together like puzzle pieces to provide and receive support in all aspects of life. Each group possesses its own unique social capital that can be shared and used to the advantage of others (*Fig. 3.1*). Advocacy groups like Generations United (GU), a non-profit organization based out of Washington D.C., specifically aim to link together young and old through volunteer programs, workshops, information, training, and research.<sup>09</sup> GU works to bridge gaps between young and old by focusing on multiple areas of advancement:

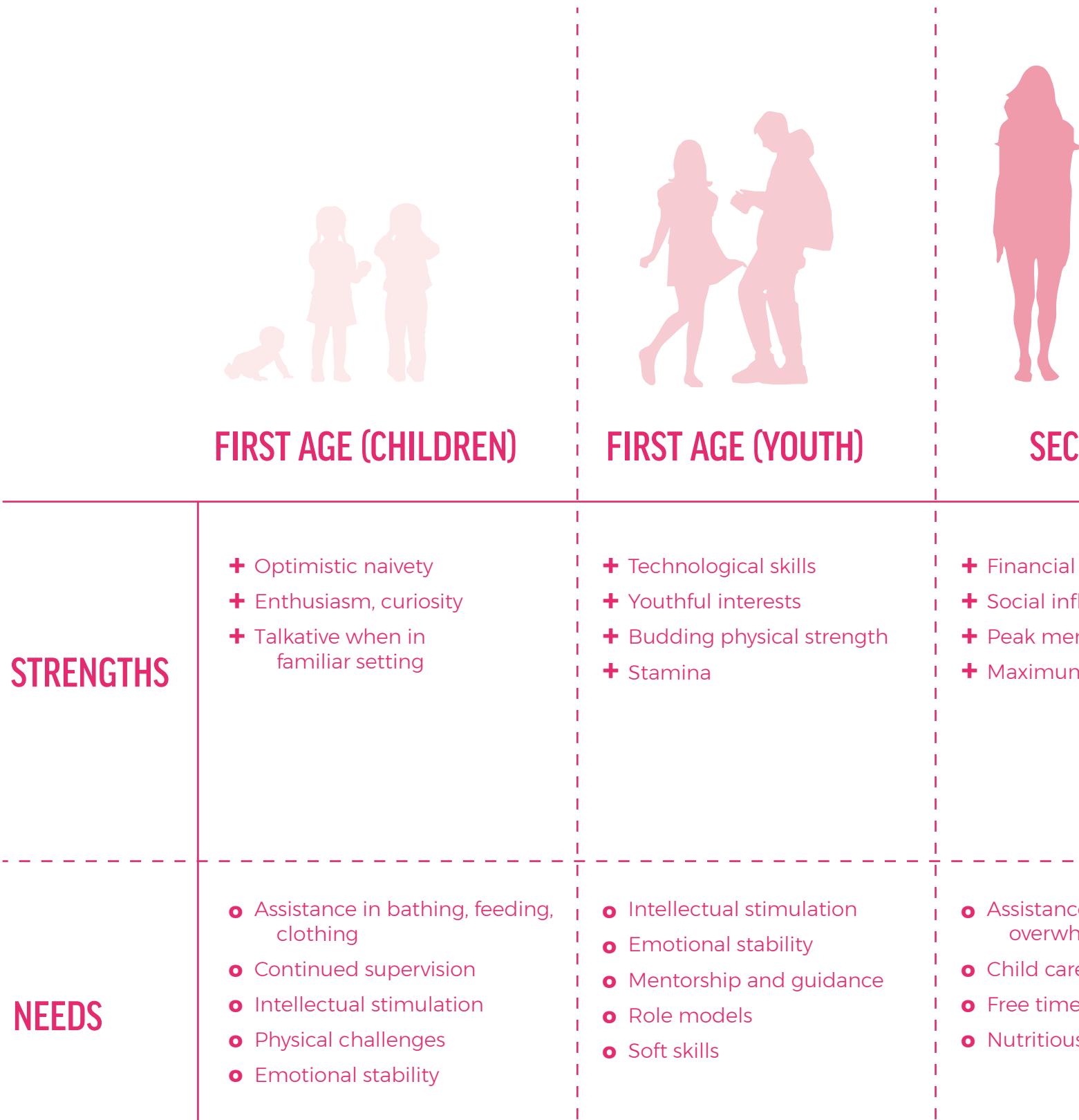
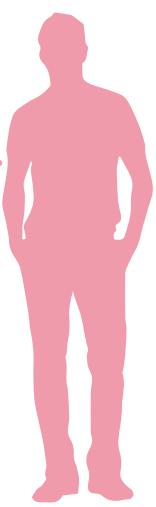


Fig.  
Strengths and needs



## SECOND AGE

earning power  
influence  
mental acuity  
in physical strength



## THIRD AGE

- + Financial stability
- + Life experience
- + Mental stability
- + Wisdom
- + Free time
- + Greater interest in altruism



## FOURTH AGE

- + Knowledge and wisdom
- + Greater sense of perspective
- + Ability to face complex or emotional situations
- + More stable emotions
- + Focus on present-day enjoyment
- + Stable lifestyle
- + Greater interest in altruism

Managing  
relentlessly busy lifestyles  
services  
  
complete meals

- Social engagement
- Intellectual stimulation
- Leisure and recreation
- Hobbies and activities

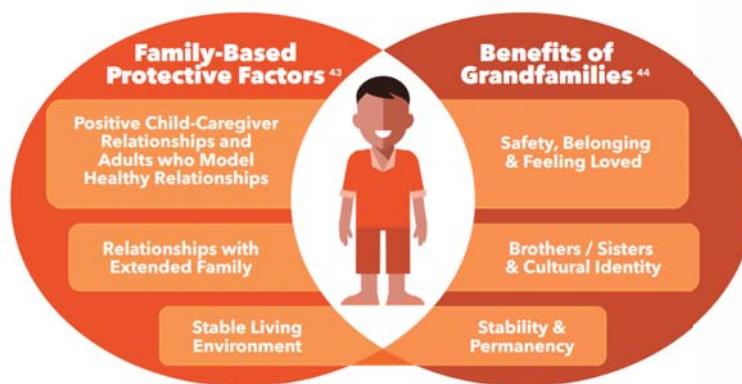
- Physical assistance in everyday tasks
- More time, space, and effort to do everyday activities
- Assistance in maintaining a household
- Assistance in personal care
- Avoidance of depression and isolation

economic opportunity, harnessing the neglected power of youth and older adults to provide valuable services to their communities; multi-generational households and grandfamilies, encouraging the existence of family units in which grandparents, extended family, or grandparent-like adults raise children; shared spaces, setting up sites in which people young and old are able to interact in both formal and informal encounters; programs, using activities and workshops to increase interaction and mutual understanding and acceptance between generations; public policy, promoting the inclusion of intergenerational strategies among lawmakers.<sup>10</sup>

The economic factors that often initiate the formation of intergenerational communities are undeniable in the wake of the 2008 recession. According to a report published by GU entitled *Family Matters: Multigenerational Families in a Volatile Economy*, “66% of adult respondents living in a multigenerational household reported that the current economic climate was a factor in their family becoming a multigenerational household, while 20% reported that it was the only factor. 40% reported that job loss, change in job status, or underemployment was a reason their family became a multigenerational household. 21% reported that health care costs prompted them to form a multigenerational household. 14% reported that foreclosure or other housing loss caused them to form a multigenerational household.”<sup>11</sup> As identified in the report, there are many economic benefits to nurturing multi-generational relationships. Pooling resources and sharing costs can help optimize food budgets and reduce the stress of large expenses like cars and a mortgage. Living with more adult family members, like parents or grandparents, who can share household responsibilities frees up younger adults to invest in their future by pursuing further education or to start their own business. Child care provided by grandparents or other adult family members is, in and of itself, a significant cost savings to young parents who may not have sufficient savings or income to pay for outside help. Although the multi-generational household in many cases relies on the financial stability of older adults, founded on decades of hard work, younger generations can also provide services to older people that might otherwise need to be paid for. Household chores and repairs that are physically demanding may become increasingly difficult for older people to perform as they age, forcing them to hire housekeepers and handymen to maintain their home. These tasks can often be performed by young people with minimal to no training. When older people age further, with deterioration in their physical and mental health, young people can assist in keeping their health and safety in check and delay the public and private costs of in-home care, hospitals, and nursing homes as much as possible. These relationships can also extend beyond the household and into neighbourhoods or community networks.

Grandfamilies are prime examples of successful intergenerational

exchange when sufficiently supported and given the resources necessary. Grandfamilies are defined as “families in which children reside with and are being raised by grandparents, other extended family members, and adults with whom they have a close family-like relationship such as godparents and close family friends”.<sup>12</sup> This can include children whose parent or parents also live in the house, but are not the primary caregivers for their children for one reason or another. Often, these grandfamilies are borne of trauma within the child’s life, “including parental opioid or other substance abuse, incarceration, mental illness, and death. Typically the circumstances that lead children to be removed from their parents’ care involve multiple adverse childhood experiences (ACEs), such as parental substance use disorders, physical, emotional or sexual abuse and chronic neglect.”<sup>13</sup> Grandfamilies face a myriad of unique challenges in addition to the trauma that may have brought them together, including legal obstacles, mental health stresses on both children and grandparents, deterioration of the physical health of the grandparents, economic challenges of raising children on a potentially fixed income or retirement savings, marital strain, the loss of the grandparent role, and even social stigma amongst the child’s peers.<sup>14</sup> Housing becomes an immediate and urgent concern for grandfamilies as the specific relationship dynamics at play in a grandfamily may not be well suited to current models of housing, especially if there are also other relatives living in the household. Grandparents often live in downsized apartments or senior’s communities that are not conducive to raising children due to size, proximity to child-related resources, or age restrictions, requiring grandfamilies to upsize to larger and more expensive housing.<sup>15</sup> When these difficulties can be overcome, children are able to better overcome any trauma and reap the benefits of being raised by older and wiser parent-figures (*Fig. 3.2*). Multigenerational



*Fig. 3.2 Benefits of grandfamilies for children*

Children of grandfamilies can benefit greatly from intergenerational care, as grandparents are typically more stable and can take on the role of protector and caregiver when parents cannot.

## Intergenerational Solutions

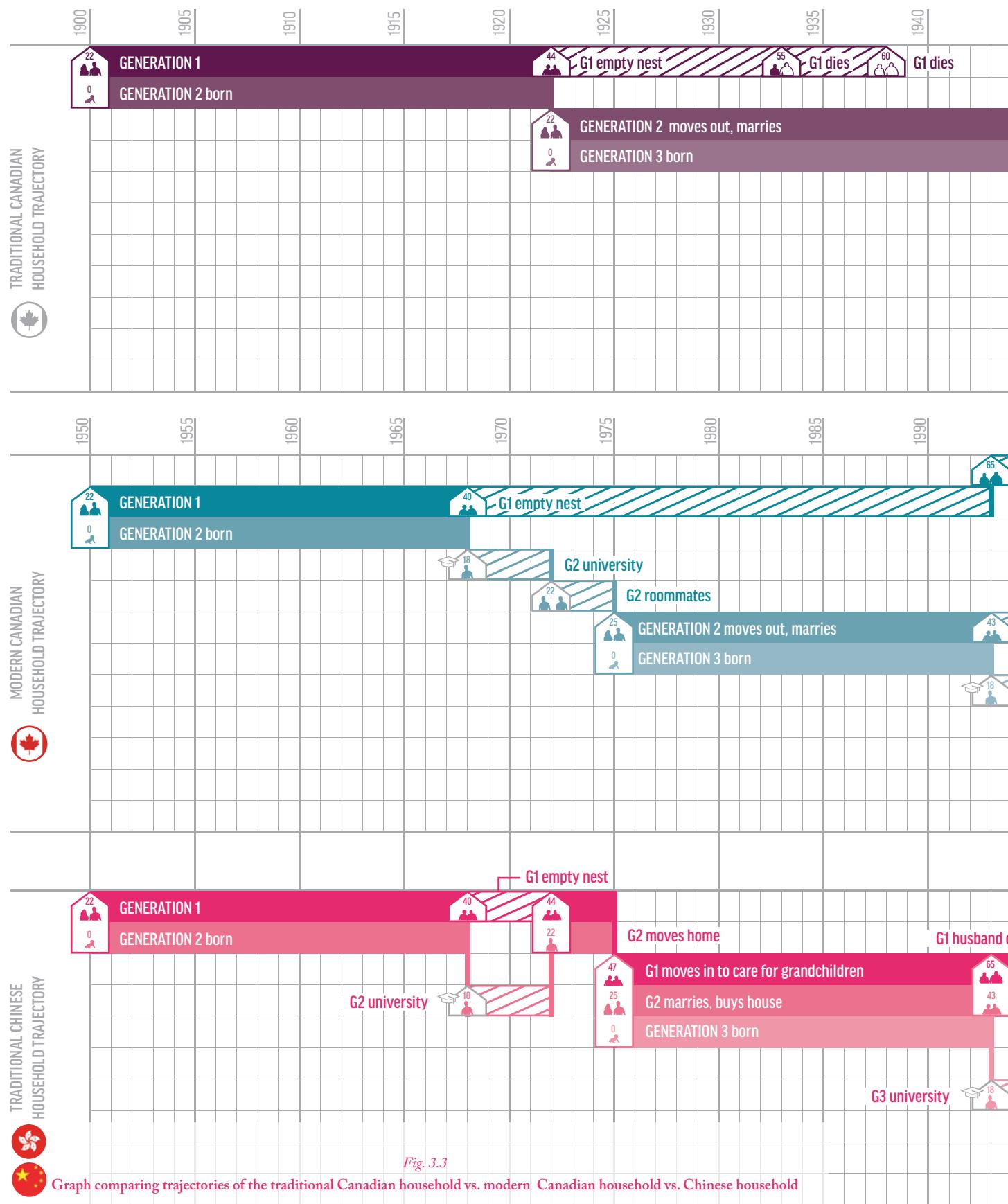
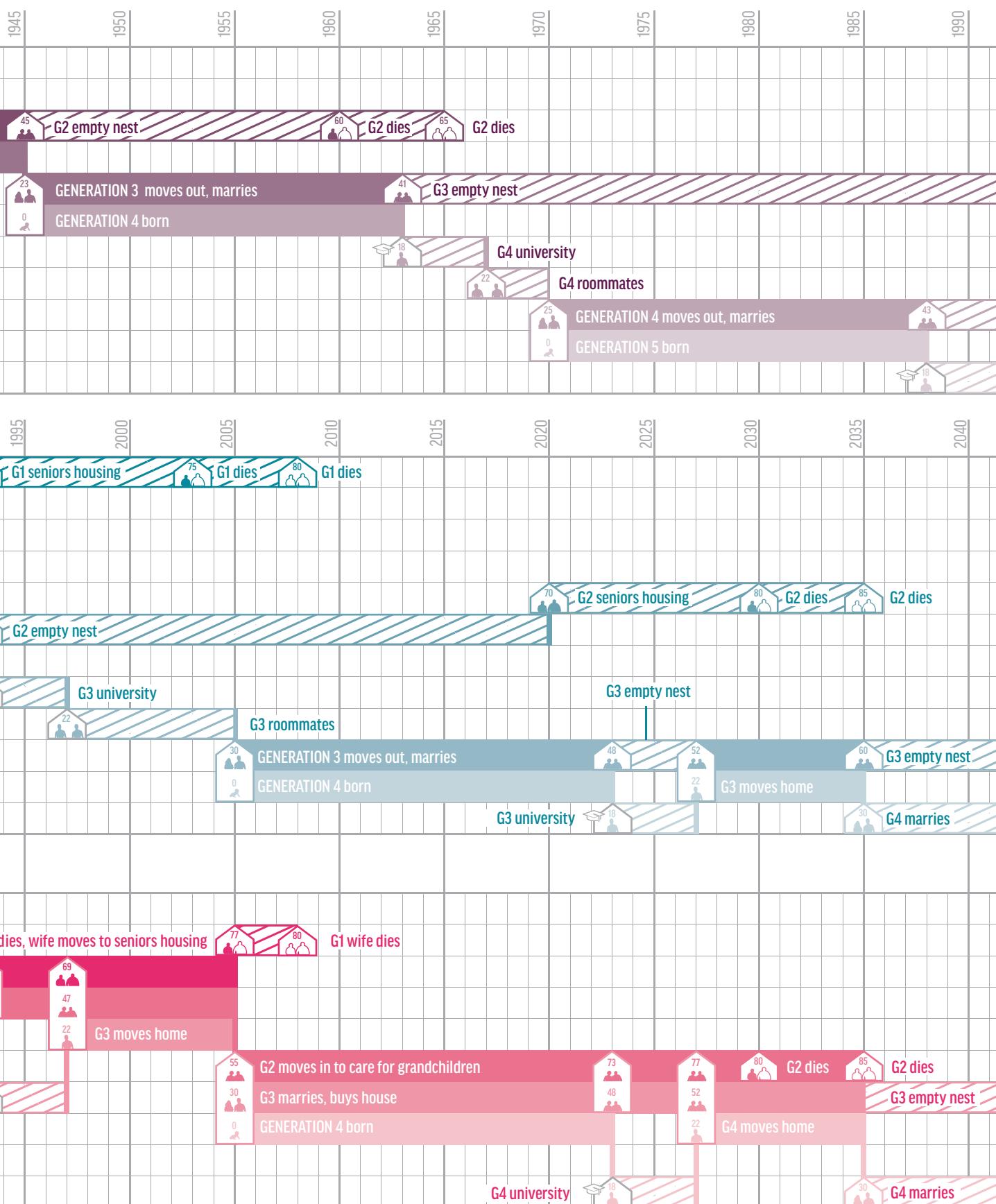


Fig. 3.3

Graph comparing trajectories of the traditional Canadian household vs. modern Canadian household vs. Chinese household



families are also on the rise, including two adult generation households, where parents and grown children live together by choice or by necessity, and three- and four-generation families, where parents take on the primary child-raising role but grandparents and sometimes great-grandparents are also a part of the household. While these multigenerational families have historically been less common in Canadian culture, with young men and women typically leaving home in early adulthood to get married and start their own families, they are now becoming increasingly common as social values and economic circumstances change (*Fig. 3.3*). More adult children are moving back into their parents' homes after university for financial reasons, especially for those unable to find work immediately after completing their undergraduate schooling. This phenomenon has drawn a certain level of stigma from older generations in Canada, perceiving the current generation of youth as lazy or unmotivated. However, this is perhaps simply an issue of culture — traditionally, in Chinese households and in many Asian cultures alike, it is the norm for grown children to live with their parents until they get married, with no associated stigma. Arguably, the inverse is true - if a young adult chooses to live apart from their parents despite being financially unstable, some may infer a rift or serious disagreement within the family. After the young adult gets married and has children, it is also common for the parents (now grandparents) to move in with the family and raise their grandchildren while the parents work full-time. This practice is still alive and well in most parts of China, except where adult children are forced to move away from rural villages to start lives in distant cities. These multigenerational family types have different needs from the typical nuclear family and therefore need different living environments and support networks.

A crucial component to encouraging intergenerational exchange is the creation of shared spaces, where people of multiple age groups can interact in a space that is not explicitly designed to prioritize the needs of one particular group. These spaces should allow for more frequent encounters between people of different ages, be convenient for people of all ages to access, encourage informal interaction, and have cross-trained staff that are equipped to deal with any issues that may arise amongst young or old.<sup>16</sup> Currently, a large portion of the intergenerational shared sites available exist in the form of care service programs that combine children and nursing home residents or adult day services. Although this model is not yet standard practice, there is a growing number of programs across North America that have adopted this strategy. Kipling Acres, a recently redeveloped long-term care home for seniors and young adults located in the north-west end of Toronto, achieves this by housing a children's daycare program in the same building with a courtyard in which residents and children can play together.<sup>17</sup> Since the 1990s, Kipling Acres has been one of three



*Fig. 3.4 Kipling Acres, Montgomery Sisam, view of courtyard from above*



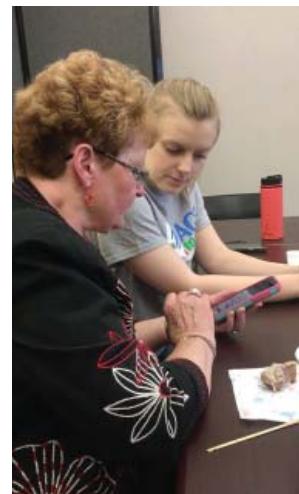
*Fig. 3.5 Kipling Acres, Montgomery Sisam, view of interior lounge overlooking courtyard*

municipally-run senior's homes that also house municipally-run daycare programming; this concept is not new to the city of Toronto. However, the 2011 redevelopment by Montgomery Sisam Architects ushered in a host of significant improvements to the complex that encourage intergenerational exchange and greater integration of the daycare into the seniors home. The daycare centre was originally completely separate from the seniors home, with separate entrances, but now shares a main entrance with the rest of the building.<sup>18</sup> The courtyard (*Fig. 3.4*), dubbed the "Intergenerational Garden", is a shared space in which the children of the daycare centre, the adults of the seniors home, users of the new seniors community centre, and adults young and old of the adult day program all housed in the same complex can play and enjoy the outdoors together. It is overlooked by many of the spaces in the complex, including resident lounges on every floor (*Fig. 3.5*), where people who may have difficulty going to the courtyard to play may still watch the activity from above.<sup>19</sup> The design of these shared sites can be challenging, because of the often mutually exclusive needs of each age group. Generations United's guidelines on shared spaces note that children's classrooms can often be unsafe and distracting, with competing bright colours, toys and supplies everywhere, potentially spills and slippery floor conditions, and child-sized furniture that can be unstable, too low to the ground, and poorly padded.<sup>20</sup> On the other hand, the wheelchairs, walkers, and other adult-sized equipment necessary to accommodate older adults can be distracting or dangerous to small children, and relatively benign features like uncovered electrical outlets and tables with corners can become hazards once children are introduced into the space.

The intergenerational programs that take place in shared sites must also be carefully planned, organized, and prepared to optimize outcomes for all participants. The ages and developmental levels of all participants must be taken into account when designing these programs to maximize engagement. Programs can be divided generally into two categories: programs that aim to explicitly provide services or support to one or more groups, and programs directed at leisure, bonding, and interaction between generations. Service-focused programs can include youth volunteer work in helping older adults stay in their homes, transportation and neighbourhood safety programs, health care services, general retail services, and education and employment services.<sup>21</sup> Leisure programs often surround activities that people of all ages can partake in and enjoy, such as dancing, arts and crafts, games, music-making, and story-telling.<sup>22</sup> Kipling Acres' intergenerational program features "Move and Groove" sessions (*Fig. 3.6*) in which the senior residents and children from the daycare centre get together to dance and play, with the support of staff and early childhood educators.<sup>23</sup> Other activities available at the home include cooking, crafts, bingo, and seasonal highlights like costume parades during Halloween and Christmas



*Fig. 3.6 Young and old dance together during Move and Groove session at Kipling Acres*



*Fig. 3.7 Older adult learning to use a smartphone from a teenager at Two Harbors*

celebrations.<sup>24</sup> These programs, in addition to the informal encounters that arise as a result of the building's design, bring happiness, understanding, empathy, and joy to all people involved: "It may not seem like a big deal, but it really is important that these little people are walking through (the home) with their parents and they're a part of this whole community," [Kipling Acres program manager Nancy Roscoe] says. 'Whether it's in the morning or at night when they are leaving, [the children] are seeing people who are in wheelchairs, using walkers, who have white hair,' she says. 'Children learn through experience. And here they get to experience another generation they might not see at home.'"<sup>25</sup> Two Harbors, Minnesota is home to a highly successful intergenerational program called "AGE to age" that harnesses the strengths of people of different ages to provide support to the community. In this small town of 3,685, there are dozens of intergenerational activities including the Two Harbors Walking Club that promotes health and well-being amongst people of all ages; the Lego Robotics competition team, comprised of middle-schoolers led by 76-year-old coach; technology classes, in which high school students teach older adults to use iPads and Skype (*Fig. 3.7*).<sup>26</sup>

Grassroots movements and one-off projects must be paired with changes in public policy to make intergenerational communities easier to coordinate and more widespread. Key issues addressed by Generations United in efforts to push intergenerational policy forward are education, the federal budget (US), grandfamilies policy, health care, the Older Americans Act, service and volunteering, shared sites policy, social security, and social supports.<sup>27</sup> Removing institutionalized barriers to intergenerational exchange will make the formation of such communities in the future much smoother. As addressed in *Generations United's Public Policy Priorities for the 115th Congress*, the guiding principles behind intergenerational policymaking are:

- Make lifetime well-being for all the highest priority.
- Consider the impact of every action on each generation.
- Unite rather than divide the generations for the greatest social and financial impact.
- Recognize and support every generation's ability to contribute to the well-being of their families and communities.

Corresponding to the principles, a model intergenerational law or policy would also:

- Use innovative or proven approaches to improve lifetime well-being for all generations.
- Include an assessment of both short- and

long-term impacts on each generation and demonstrate benefits for multiple ages.

- Actively promote innovative and proven strategies to unite two or more generations.
- Actively promote innovative and proven strategies to support and engage every generation's ability to contribute to the well-being of their families and communities.
- Promote the interdependence of the generations.
- Encourage intergenerational transfers through shared care or services.
- Be sensitive to intergenerational family structures (e.g., grandparents who are raising grandchildren).<sup>28</sup>

#### *Barriers in Building Intergenerational Communities*

One of the biggest barriers working against the creation of intergenerational communities is housing. The current state of housing in Toronto and other major cities worldwide is focused on high-density, high-efficiency developments and some high-cost residual single-family houses, neither of which are conducive to the aforementioned intergenerational strategies. The economic potential held by older people is largely not taken advantage of, since many live in age-isolated homes with little relation to the outside world. Even those who choose to age in place can be very lonely and can be a source of economic contribution to their community, given a suitable and supportive framework. Similarly with youth, there exists a great opportunity to foster more robust engagement with their communities while reaping the benefits of their unique strengths, but all of their time is spent in a few self-contained places such as their homes, school, or after-school programs for children. In the form of grandfamilies, intergenerational networks face significant challenges in finding appropriate housing, especially in cities. Because the formation of a grandfamily can result from trauma or sudden changes in a child's life, it may be necessary for the child to enter the grandparents' or extended family members' home quickly. However, their existing living conditions may not easily accommodate a child, if the adults involved were living in seniors' housing or a downsized apartment at the time. It can be virtually impossible to find a home — in a high-rise or otherwise — large enough for a grandfamily on short notice, especially in Toronto's current housing market and if there are multiple children involved. Shared spaces for intergenerational activities is also quite limited. In areas of low density, single-family housing, shared spaces are hard to come by: outdoor parks are the only space for people in a

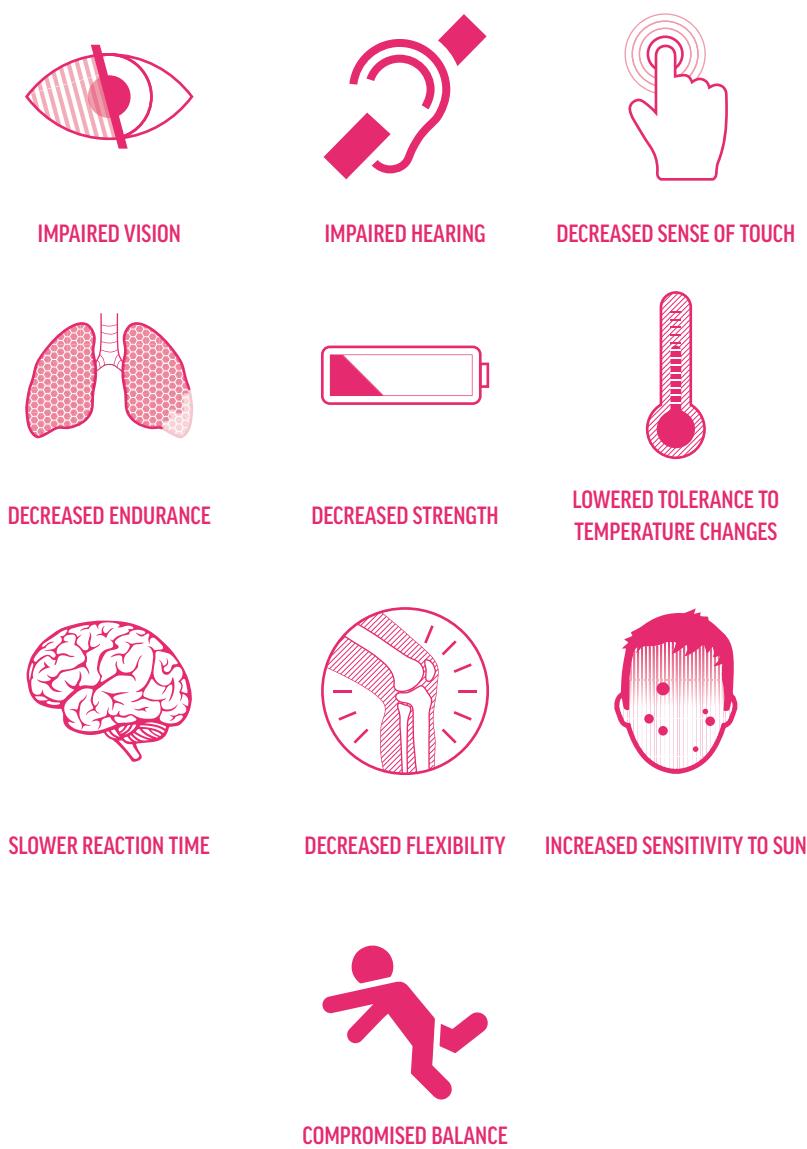
	CHILDREN'S NEEDS/CONCERNS	OLDER ADULTS' NEEDS/CONCERNS	SOLUTION
SEATING	Children need small, lightweight, durable chairs that sit low to the ground	Adults need adult-sized, sturdy, cushioned chairs for comfort and safety	Provide appropriate numbers of each type of chair, with more in storage if needed
EQUIPMENT	Medical and care equipment present potential for distractions and safety issues, especially with small children	Older adults often need mobility and care equipment, such as wheelchairs, easy-lift recliners, walkers, canes, oxygen tanks, IV drips	Familiarize children with care equipment when fewer adults are present, reducing distraction and risk in the future
UNFAMILIARITY	Children tend to be shy around strangers, especially adults, and particularly in strange settings	Older adults can seem intimidating or scary to children, especially in adult-oriented settings	<p>Set up chairs around the table or space that alternate between adult-sized and child-sized to encourage intermingling of generations</p> <p>Set up materials such that old and young share supplies and co-operate</p> <p>Limit activities to one on one or full group activities, such that no age group outnumbers the other</p>
NOISE	Children are energetic and tend to make a lot of noise	Older adults can be sensitive to the loud noises and erratic movements of children	Prepare and set up space thoroughly before participants arrive, to avoid as much traffic, noise, and distraction as possible
CLUTTER / VISUAL DISTRACTION	Spaces designed for children are generally colourful and full of toys and supplies to entice and stimulate children's imagination	Spaces designed for adults, especially older adults favour muted colours, less clutter, and simplicity to avoid potential hazards caused by impaired vision, confusion, and other age-related factors	<p>Use child-friendly colours where possible, but with restraint and consideration for older adults</p> <p>Have staff (and participants where possible) help maintain cleanliness and organization in the space</p>
CHILDPROOFING	Children can be vulnerable to many hazards in a typical home or community centre that may be completely benign for adults, such as table corners, adult-sized toilets, electrical outlets, kitchen drawers with sharp objects, refrigerators, etc.	Older adults may need some modification to a space for elder safety, such as softer floors in case of falls,	Design the shared space with safety for all ages in mind, to minimize risks and distractions from intergenerational sessions
HEALTH	Children tend to pick up and transmit bacteria and illnesses due to touching many objects and surfaces	Older adults can have weakened immune systems that make them more susceptible to illnesses	Liberally apply hand sanitizer to participants and staff before and after every intergenerational session

*Fig. 3.8 Comparison of children's and older adults' needs in intergenerational shared space*

To design shared space for intergenerational exchange that is safe and welcoming to people of all ages, the needs of children and the needs of older adults must be compared and an appropriate solution should be adopted. This can be challenging because many of the practical needs of the very young and very old are mutually exclusive or incompatible.

neighbourhood to congregate publicly, but are unusable in extreme weather and can be too far from home for some to access. High-density condos are marginally better as they often have party rooms, lounges, lobbies, or other amenity spaces, but are usually under-used as they are not intended for casual loitering, or require reservations in advance.

Two major limiting factors must be addressed in building intergenerational communities: the lack of programming directed specifically at bringing multiple generations together, and the lack of physical spaces designed with people of all ages in mind. Because children and older adults often have diametrically opposed needs, designing intergenerational spaces is difficult - but perhaps not impossible (*Fig. 3.8*).



*Fig. 3.9* Common limitations to the way older adults can experience space

### KANKANMORI COLLECTIVE HOUSE

T o k y o ,

Japan

Kankanmori Collective House is an intergenerational communal living complex located in Nippori, east Tokyo. Occupying the second and third floors of a converted high school, Kankanmori shares a building with an assisted living seniors' home (floors 4-6) and a long-term care nursing home (floors 7-12). The child care centre, medical clinic, multi-purpose space, and restaurant at ground level are all open to residents and the general public. Units ranging from 375 ft<sup>2</sup> studio apartments to 570 ft<sup>2</sup> 2-bedroom apartments are available for rent at market rates. Each unit has a bathroom and small kitchenette. Communal meals are prepared and consumed two to three times per week on a roster basis in the purpose-built common kitchen and common room.<sup>29</sup>

Building Exterior



Building Section

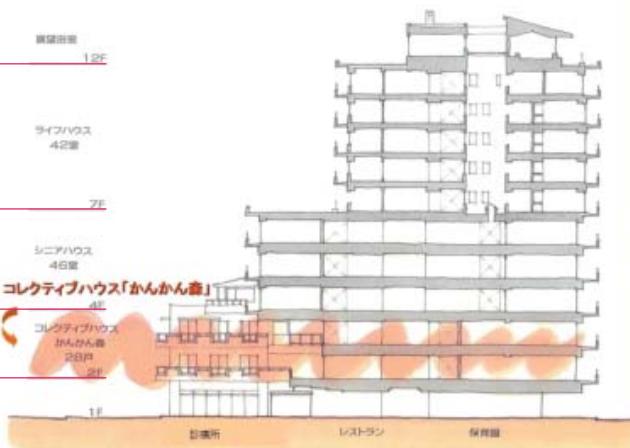
**12F**  
Bathhouse

**7F - 11F**  
Long-term care nursing home (42 beds)

**4F - 6F**  
Assisted living seniors home (46 beds)

**2F - 3F**  
Kankanmori Collective House

**1F**  
Childcare, medical clinic, multi-purpose space, restaurant (all public)



Common Dining Area



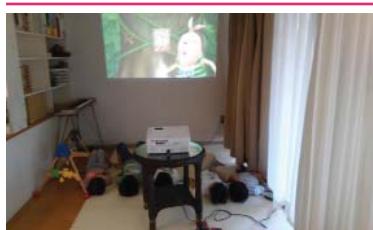
Common Kitchen



Holiday Celebrations



Common Play / Media Nook



Seniors' dining hall



Unit Interior



Fig. 3.10 Kankanmori Collective House in Tokyo, Japan

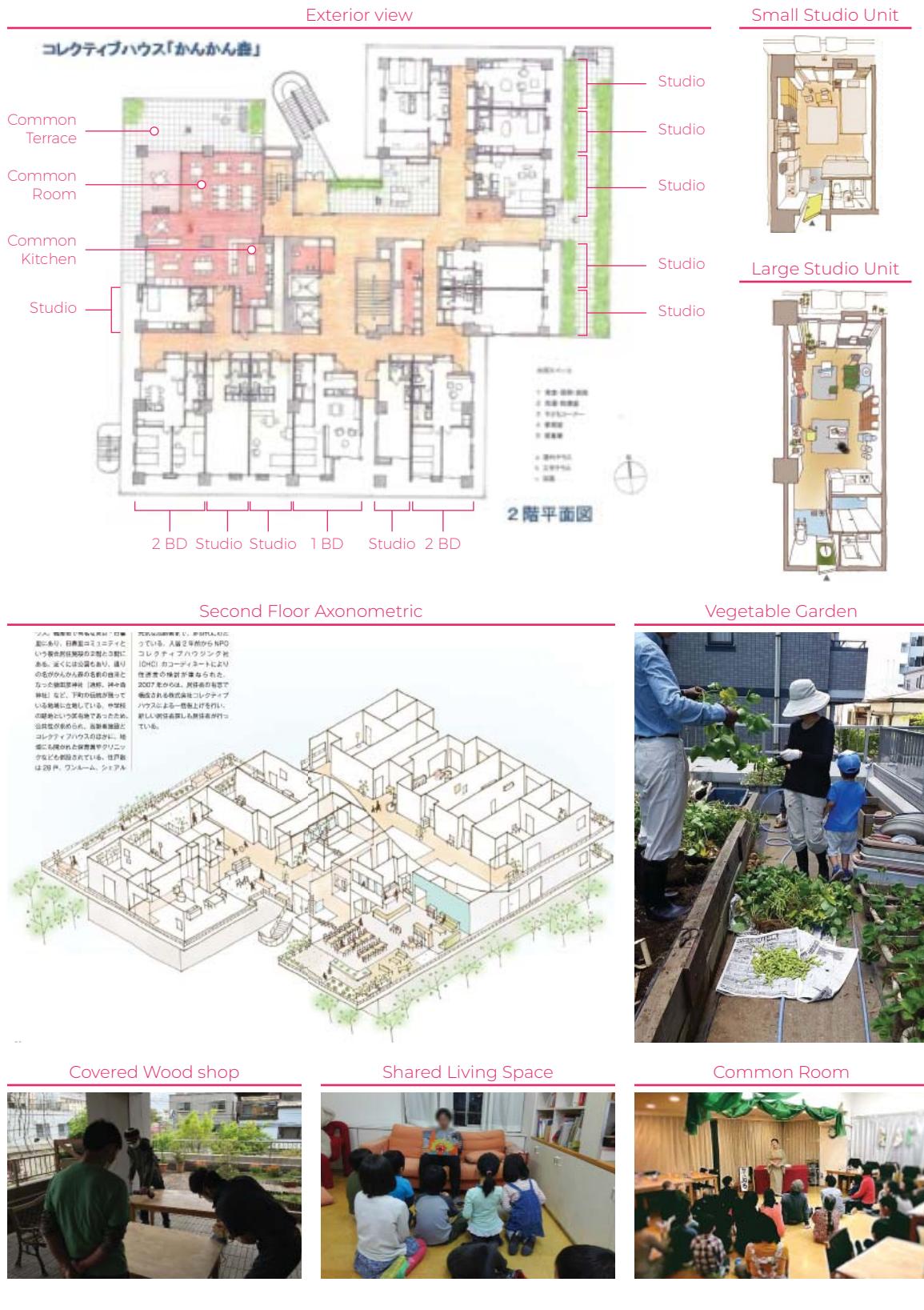


Fig. 3.11 Kankanmori Collective House in Tokyo, Japan

### HUMANITAS DEVENTER

Deventer, Netherlands

Humanitas is a seniors' home featuring multiple levels of care, including short stays (post-hospital convalescence), assisted living, long-term care, and psychogeriatric care (dementia). All units contain a bedroom and bathroom, while some units contain a small sink or kitchenette; most cooking and eating is done communally in the dining hall. Notably, six college-aged students live rent-free amongst the seniors, helping to serve meals and providing care and companionship to their neighbours. Each student is obliged to help their neighbours for at least 30 hours per month.<sup>30</sup>

Building Exterior



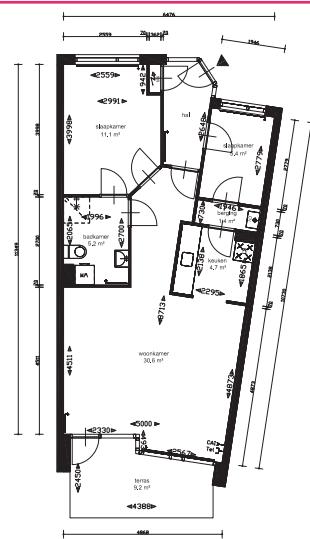
Garden



Urban connectivity



Typical Resident Unit



Dance Floor



Typical Student Unit



Youth volunteer in dining hall



On-Site Hair Salon



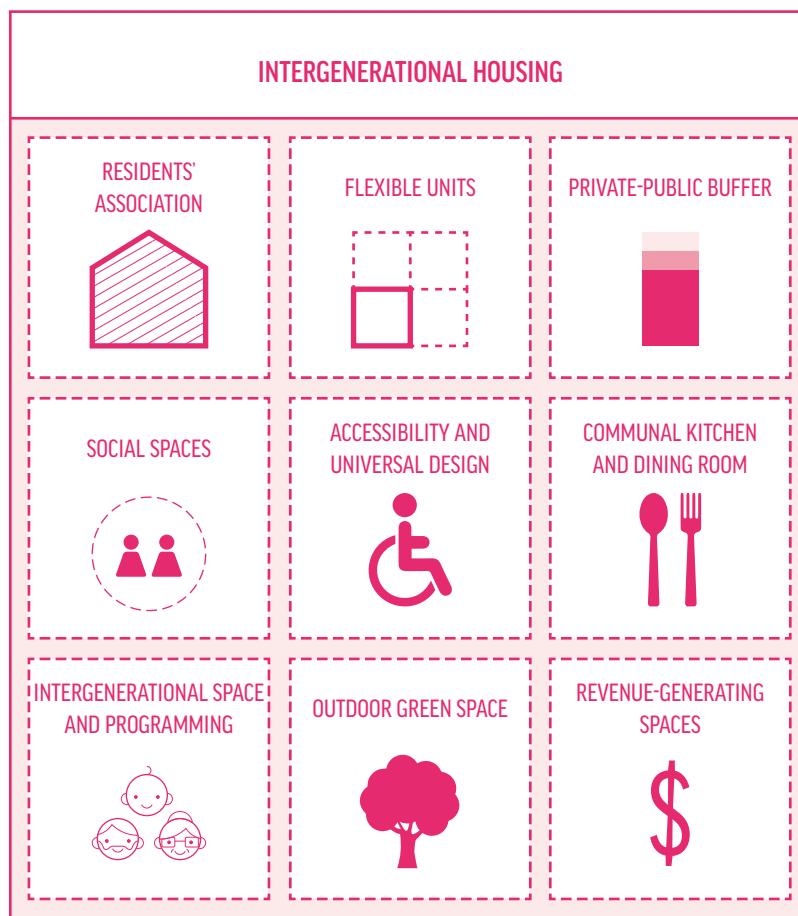
Resident Unit



*Fig. 3.12 Humanitas Seniors Home in Deventer, Netherlands*

### *Elements of Successful Intergenerational Housing*

Taking lessons from the research presented thus far, this thesis proposes nine core elements crucial to the design of successful intergenerational housing (*Fig. 3.13*). These principles focus on making spaces that do not prioritize any one age group over another, attempting to create private and public spaces most conducive to the intermingling, cooperation, and mutual understanding of people of different ages. Acknowledging the many real-life limitations that may prevent the complete set of nine principles from being adopted in one project, the author suggests that the incorporation of even one or two elements can help create a more intergenerational-friendly environment.



*Fig. 3.13* Diagram of nine elements of intergenerational housing design

*Residents' Association*

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First and foremost, an intergenerational housing community requires an organized committee of residents to help steer the formation, development, and deployment of the project. As a somewhat new idea, intergenerational housing has little architectural precedence beyond the ad hoc communities that have emerged within small, dedicated groups of people who have adapted other dwelling types to fit their needs. As such, the existing body of knowledge on designing spaces for intergenerational exchange is small and will require the input of the community itself. Working with an architect, the group should represent all age groups to ensure inclusiveness and to consider viewpoints that may not necessarily be immediately obvious to the design team. In this way, intergenerational exchange starts from the inception of the project and gives agency to everyone in the community. During the development of the project, the team must also determine the ownership model of the project. At its heart, an intergenerational housing community is not market housing and will therefore require some level of external funding to make the project economically feasible - whether it be through a co-op structure or a community land trust (CLT), with some mixture of government and donor funding (*Fig. 3.14*). In smaller municipalities with lower market housing prices and less pressure to build as densely as possible it could also function as a condominium or co-housing. The precise tenure and funding model must be determined by the entire design team with regard to their specific circumstances. After the project is built, the community will rely heavily on the residents' association to administer many aspects of the community. Since intergenerational housing is community-oriented, the residents' association must take on the same responsibilities as a typical condo board, addressing resident issues and enforcing rules, while also encouraging the growth and betterment of the community as a whole. The success of an intergenerational community relies on both well-designed spaces and properly administered programs and activities. To do so, a space must be provided to conduct town hall meetings that allow every resident to attend and participate.

## Community Land Trusts

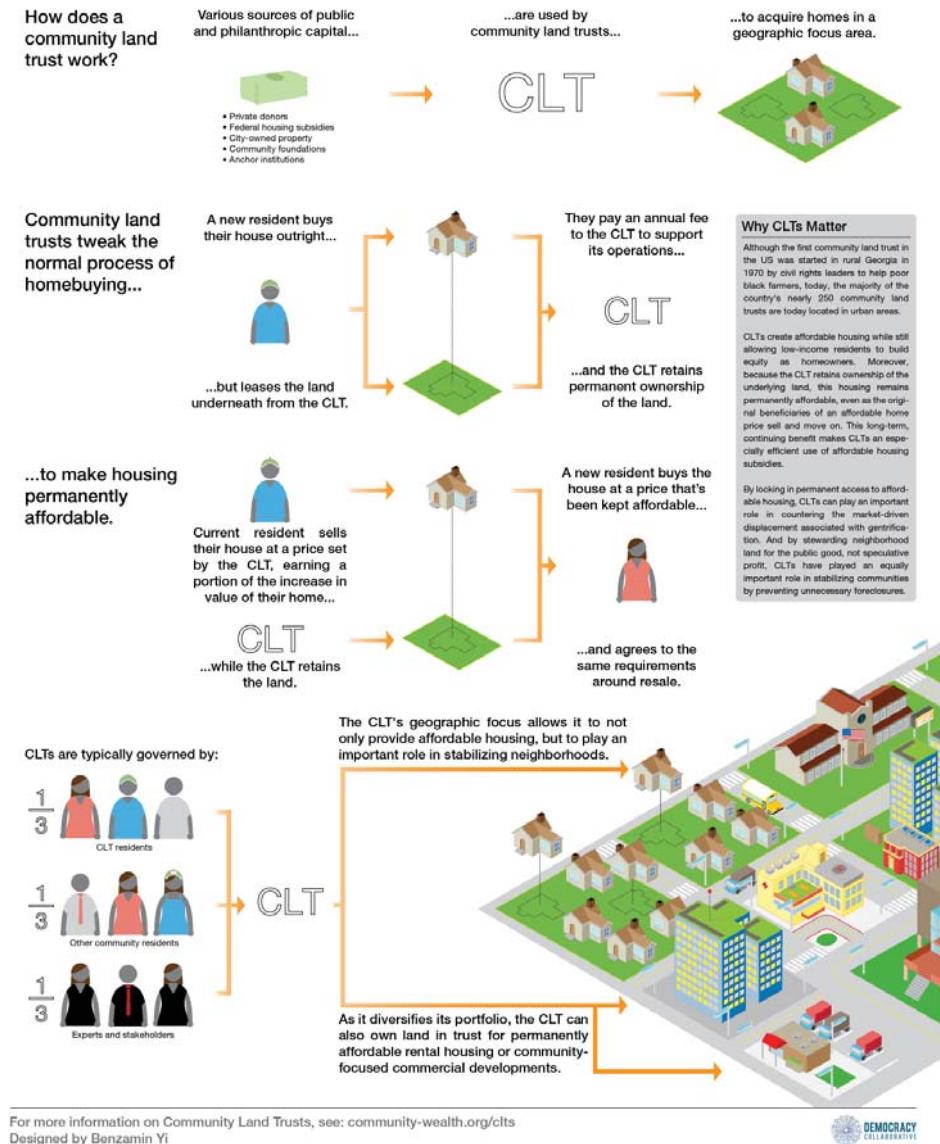


Fig. 3.14 Community land trust structure



Fig. 3.15 Residents conduct a design charrette for Delaware Street Commons co-housing project, Kansas



Fig. 3.16 Residents attend a co-housing conference



Fig. 3.17 Community members participate in Parkdale Community Land Trust's Annual General Meeting, 2017

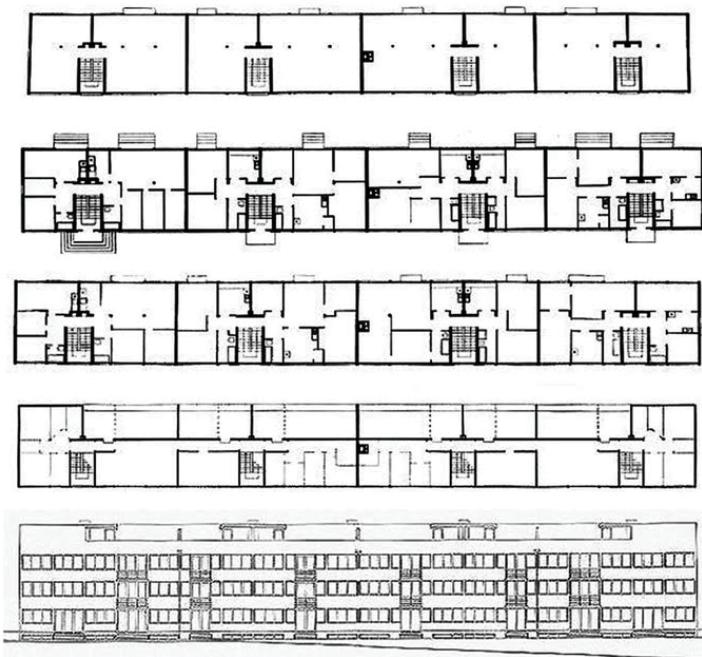
### Flexible Units

The second feature integral to creating intergenerational housing is the principle of flexible, adaptable dwelling units. The idea of flexible housing units is not new, in both formally designed and makeshift manifestations. As circumstances change, families have evolving requirement of their living environments. Jeremy Till and Tatjana Schneider define in *Flexible Housing*, “Our broad definition of flexible housing is housing that can adjust to changing needs and patterns, both social and technological. These changing needs may be personal (say an expanding family), practical (i.e. the onset of old age) or technological (i.e. the updating of old services). The changing patterns might be demographic (say the rise of the single person household), economic (i.e. the rise of the rental market) or environmental (i.e. the need to update housing to respond to climate change).”<sup>31</sup> Architects have taken on this design challenge in the past, especially in Europe, but their ideas have not quite reached mainstream popularity. In early iterations of flexible housing, most projects focused on the ability of interior layouts within the unit to change according to the needs of a household over years or even throughout a single day, with sleeping areas converted to living areas during the day. Houses 1 to 4 designed by Mies van der Rohe for the Weissenhof Estate building exhibition in Stuttgart in 1927 are designed for such flexibility.<sup>32</sup> The buildings are long and narrow, divided into four main units, each served by its own stair core. The only permanent fixtures within the building are suite-to-suite demising walls, stair cores, and structural columns within the units. Interior layouts are created using non-permanent, lightweight partitions to meet the needs of the household as they evolve. Each unit is open to windows on two sides, freeing up the interior layout to be rearranged as desired as any room can be placed in virtually any position.



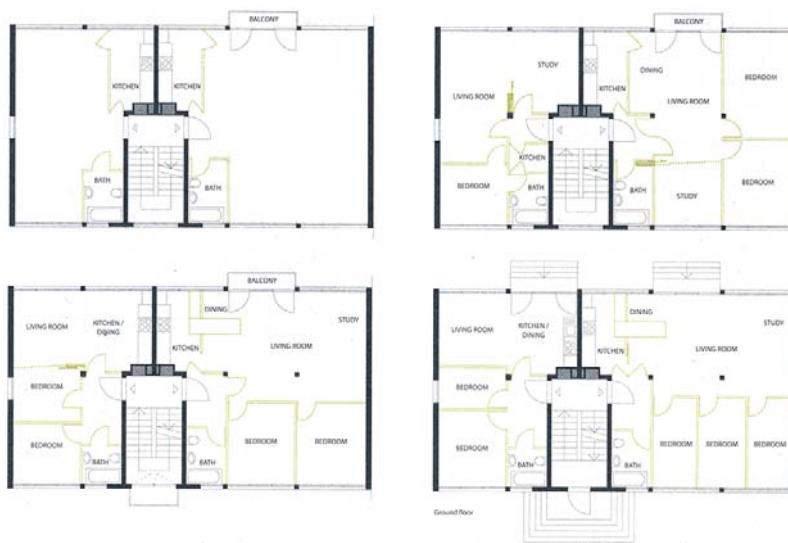
*Fig. 3.18 Mies van der Rohe Apartment at Weissenhof Estate, exterior perspective*

This apartment building is one of four designed by Mies van der Rohe for the Weissenhof Estate project in 1927 in Stuttgart.



*Fig. 3.19* Mies van der Rohe Apartment at Weissenhof Estate, plans and elevation

The only permanent structural fixtures inside the building are the suite-to-suite demising walls, columns, and stair cores. Within the unit, only the kitchen and bathroom are fixed as a consequence of their required facilities. Unit layouts are adjustable with lightweight, non-permanent partitions.



*Fig. 3.20* Mies van der Rohe Apartment at Weissenhof Estate, unit layout option plans

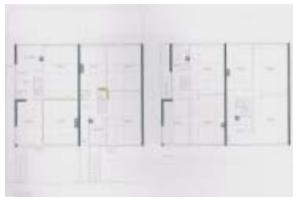
Depending on the needs of the household, the basic unit can be subdivided as little or as much as needed. Layout options are highly free as each unit has windows on two of four sides, so virtually any room can be placed in any position.



**Fig. 3.21** Housing Block  
Erasmuslaan, Gerrit Rietveld,  
exterior perspective



**Fig. 3.22** Housing Block  
Erasmuslaan, Gerrit Rietveld,  
interior perspective



**Fig. 3.23** Housing Block  
Erasmuslaan, Gerrit Rietveld,  
plans

Rietveld's Housing Block at Erasmuslaan employed flexible housing strategies including sliding partitions (tracks shown in interior perspective) and a consistent grid to guide wall and window placement.

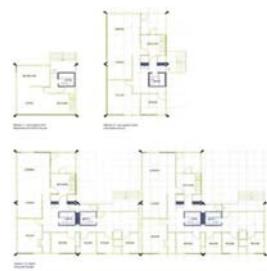
A similar strategy was employed in Gerrit Rietveld's Housing Block at Erasmuslaan in 1931, where units are separated by shear walls running the full width of the building and are subdivided into a 1 meter by 1 metre grid that guides the placement of traditional partition walls and sliding partition walls. The kitchen, bathroom, and stair core are grouped in one corner of the unit to free up the remaining space for living. This configuration was free from structural members on the exterior walls, providing space for more generous windows.<sup>33</sup>

In the 1960s and 1970s, the Dutch and Japanese structuralists expanded on the concept of flexible in architecture by establishing structural members as the fixed framework around which everything else is free to be moved about according to the needs of the inhabitants.<sup>34</sup> Formed in direct response to the prevailing functionalist tendencies of the time, structuralism was founded on the idea that architecture must manifest as a confluence of all cultural, historical, social, human context that belies it. Kenzo Tange adopted this idea and wrote of it: "the basic theme of present-day urban design to think of the spatial organization as a network of communication and as a living body with growth and change."<sup>35</sup> Aldo van Eyck, one of the most prominent structuralists of the time and a prolific writer, argued strongly against rationalism and functionalism entirely:

Van Eyck's highly poetic writings, particularly those he published in the Dutch journal Forum in 1959-1963, are rich in intimations and clearly express his unique concerns. Even in his first address to the CIAM congress in Bridgewater in 1947, he was forceful in his denunciation of rationalist and mechanistic thinking. As he noted at one point, "The more tangible functions - those implied by the word 'functionalism' - are only relevant in so far as they help to adjust man's environment more accurately to his elementary requirements." Van Eyck ultimately rejected the term rationalism altogether, and elementary human requirements for him became entirely psychological and emotional. In theory and practice, van Eyck sought to address the very primal and universal human urge to obtain a just recognition of one's individuality, identity, and presence in the world.<sup>36</sup>

The Square L-Type System developed by Dutch architects Johannes Uan den Broek and Jacob Bakema in 1967 used these ideas by creating a basic 6.3 x 6.3 m stackable module that can be combined in any number of ways to fulfill the needs of the user.<sup>37</sup> The building can then grow as needed, up to 16 storeys. Moshe Safdie's Habitat 67, one of Canada's most iconic works of architecture, reflects both structuralist and metabolist sensibilities, using

354 interlocking pre-fabricated concrete boxes to form 158 dwellings of various sizes, thereby achieving flexibility in the types of units that can be achieved.<sup>38</sup> In recent years, as condo units have shrunken in size, the rise in prevalence of micro-apartments has led to the design of multi-tasking furniture and adaptable all-in-one solutions. Toronto's Smart House condo, designed by architectsAlliance, is intended to be minuscule in scale and features beds that fold up into a storage unit to reveal a couch underneath — a particularly necessary feature in the smallest 289 ft<sup>2</sup> studio units.<sup>39</sup> This allows for flexibility in the interior layout configurations on a much smaller scale than in the work of Mies and Rietveld, reminiscent of the traditional Japanese usage of futons on tatami mats. Spanish architect Angel Rico designed an custom unit that combined a small kitchen, storage, a partition, and a fold-down bed that opens and closes to created multiple layouts in a 215 ft<sup>2</sup> space. Most recently, MVRDV's installation (*W*)ego: *The Future City is Flexible* at the 2017 Dutch Design Week exhibited this idea in an immersive and interactive setting: given a set of habitable modules, a group



*Fig. 3.24* Square L-Type System,  
Johannes Uan den Broek and  
Jacob Bakema, plans



*Fig. 3.25* Habitat 67, Moshe  
Safdie, exterior perspective



*Fig. 3.26* (W)ego Installation,  
MVRDV, front perspective



*Fig. 3.27* Smart House,  
architectsAlliance, view of fold-  
down bed



*Fig. 3.28* Apartamento Ma, Angel Rico, all-in-one unit in various configurations

Rico's all-in-one solution to a 215 ft<sup>2</sup> apartment can be completely closed, opened halfway to create a privacy partition, opened fully to reveal a micro-kitchen, and further unfolded to reveal a bed.

of visitors to this “hotel” must negotiate with one another to create the most broadly pleasing configuration according to the desires of each inhabitant.<sup>40</sup>

Even though various takes on flexible strategies in housing have emerged intermittently throughout the 20<sup>th</sup> century, none have quite caught on in mainstream architectural practice. Some strategies are ultimately much more expensive than standard building practices yet provide little added value in the long-term lifespan of the project. In the case of Habitat 67, both construction and poor management led to its financial hardship:

Habitat construction sucked up more than \$22 million—\$135 million in today's dollars—for fewer than 200 small apartments, even though parts of each unit were subsidized by suppliers. Safdie and others defended the stratospheric costs on the grounds that this was a pilot project. Producing, reinforcing, transporting, and

placing each module cost a lot of money; the embedded and indirect costs of catwalks, plazas, and automatic garden-watering systems drove the budget through the roof. [...] After Expo, Habitat stood empty for over a year. Flailing around to pay off the construction bill, the Canada Mortgage and Housing Corporation first set the rents at astronomical rates: over \$1,000 for some units, at a time when a pleasant two-bedroom townhouse could be had for a couple of hundred dollars a month. Making matters worse, CMHC was simply a lousy marketer. It eventually slashed the rents to \$400 per unit, still high for the times. It was a money-loser for the government, and restricted to high earners.<sup>41</sup>

While other projects may be viable solutions financially, they meet a demand in the housing market that is relatively small and lacks urgency. These flexible housing solutions generally fall into two categories: self-contained units with interior layouts that can be altered infinitely, and buildings designed on modular systems where unit sizes and configurations can be varied but are quite permanent once the building has been erected. These strategies have their time and place, and are appropriate for certain circumstances. Variable unit layouts allow for households to adapt their use of space to their needs at any given time, and allow for easy transition between old and new tenants. Modular dwelling complexes make designing units of different sizes and configurations more logical and efficient by providing an overarching framework and accelerates construction through pre-fabrication. However, the densification, urbanization, and housing affordability crises have created a much greater and more pressing demand in cities worldwide for housing that can be flexible in both layout and size depending on the personal and financial situation of the inhabiting household. As children move away, spouses die, or household financial health changes, families often need or want to make adjustments to the size of their dwelling without being obliged to move into a different home altogether. Yet, there is a distinct lack of viable alternatives.

For people living in houses wishing to downsize, they are able to do so by subdividing and renting out portions of their house provided that the existing layout is easily adaptable. This duplex or triplex format has been popular in Toronto for many years as an improvised solution to this long-standing demand, with homeowners splitting their three-storey homes into three separate units. Some landlords choose to live in one of the three units, renting out the other two, while others rent out all three units and use the home as an income property. These vertical split duplexes and triplexes are highly profitable, as the asking rents for each unit individually

can add up to much more than rent for the house as a whole. However, the conversion from single-family home to multiplex apartment is a fairly significant commitment for homeowners to undertake: renovations may be costly, especially for older houses, and all practical matters must be handled by landlord including finding and vetting new tenants, maintaining and repairing the units, attending to emergencies, potential legal conflicts with troublesome tenants, and overall time consumption. Selling off parts of the house as condo units is also an option, avoiding some of the aforementioned hassle, though this strategy also brings its own challenges like bringing the each unit up to code for fire safety, separating gas and electricity meters, establishing and charging condo fees for future communal repairs like the roof or water heater, and having no control over who lives in the same house as you in the future. It is a rather uncommon solution in Toronto, but is popular in comparable North American cities like Boston.<sup>42</sup>

Those who live in homes not conducive to subdivision face a tougher decision as their options may be limited to renting out the basement level or even individual rooms in the home. However, concerns regarding safety and privacy for both tenant and landlord may be preventing this from being a popular option for many homeowners. The growing proportion of people living in condos are especially disadvantaged in this regard, as it virtually impossible to further subdivide small apartments especially with vulnerable persons involved — like children or older adults. In times of change within the household, these families will be forced move, re-entering the competitive housing market at a potentially inopportune moment financially or personally. Every move also incurs a whole host of easily overlooked costs, such as realtor commission, land transfer tax, hiring of movers, renovations to the new home, not to mention a substantial investment of time and effort.

The most common design practices in the Toronto condo construction industry today do not account for the changing needs of its inhabitants, but are optimized instead for spatial efficiency and economy, resulting in many virtually identical condo developments with slight variations in branding, finishes, and level of luxury. This strategy fulfills a present demand and can be highly profitable for developers, especially in Toronto's current real estate climate, but fails to consider households that have different or changing needs compared to the young, often childless adults typically associated with condo living.

To keep construction costs low, fit more units in the same area, and reduce heating and cooling costs in the future, units are usually clustered together as compactly as possible while giving each unit one wall with access to views, light, and fresh air. As a result, each unit is like one long and narrow cell, completely isolated from adjacent cells and dark on all sides except one. A typical column grid spacing of 6 m along both axes accommodates one 6 metre-wide unit per bay. With only one 6-metre wide wall available to

place windows, the units are comprised of areas rather than traditional four-walled rooms to let light penetrate through the depth of the unit as much as possible. The living area and bedroom share the width of the windowed wall, for building code and quality of life purposes, with the living area taking slightly more than half the wall to ensure that it is larger than the bedroom. The entry area near the unit entrance might have a coat closet and stacked washer-dryer, producing a kitchen and dining area in the middle of the unit. The bathroom may either be positioned near the entrance or across from the kitchen for more convenient access from every corner of the unit and to create a buffer between the bedroom and the den. In Toronto, many condo developments have increasingly been able to market rooms with no direct access to windows as bedrooms nonetheless, provided that it has a sufficient amount of glazed wall, whereas they once were relegated to the status of a den or office. While many of these areas are mutable in their size and function depending on the desires of the user and are delineated by furniture placement, two explicitly designed areas are essential to a dwelling unit: the kitchen (cooking area) and the bathroom (washing area). These areas are incorporated into the base building design and are generally not multi-purpose or optional, as they are required for basic human physiological needs for shelter. Whereas sleeping, living, and eating areas can take many forms — in the case of studio apartments, all three functions can be combined into a sofa bed and coffee table — the kitchen and bathroom usually contain an established set of components that perform certain functions. These components are permanent and dictate the location and purpose of all other areas because they require access to plumbing and, once positioned, cannot be moved within the unit. Between units, structural columns and shear walls are hidden in suite-to-suite demising walls as much as possible to reduce the number of vertical interruptions in the space, with modest soundproofing interstitially to provide some acoustic privacy between units. At its essence, the current Toronto condo building is a series of densely packed, isolated box-like units each with a kitchen and a bathroom.

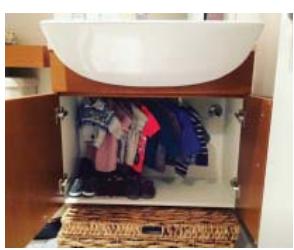
The typical residential floor plan that results from the tight packing of small units is densely populated, with little space to maneuver both within the units themselves and in the corridors that serve each floor. Since each unit is already compressed and optimized for spatial efficiency, and each unit is fixed in its overall area in every direction, there is little to no opportunity to customize the space for the changing needs of the household. Some families have tried to modify their units to suit their needs: as more millennial couples living in small condos begin to have children but cannot afford to move to a larger unit or a house, they are inventing new ways to use their limited space.<sup>43</sup> Some use the bathtub in their second bathrooms for storage, especially of strollers and other bulky baby equipment. One young Toronto couple turned the second bathroom in their condo into a nursery for their baby, placing a platform over the bathtub to support a crib and using storage



*Fig. 3.30 Condo bathtub used as stroller storage*

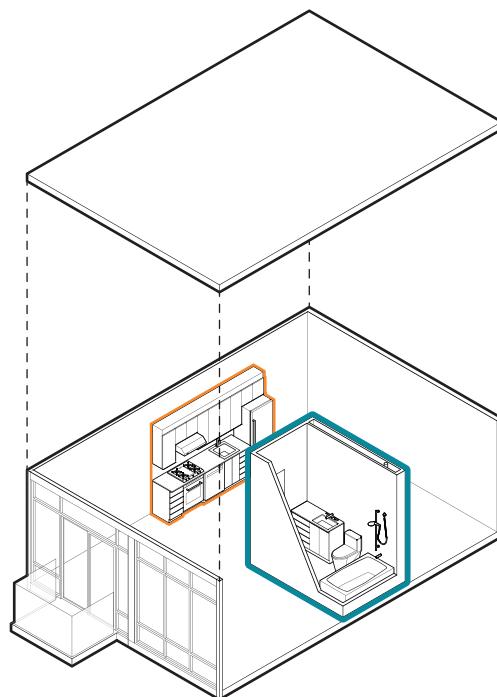
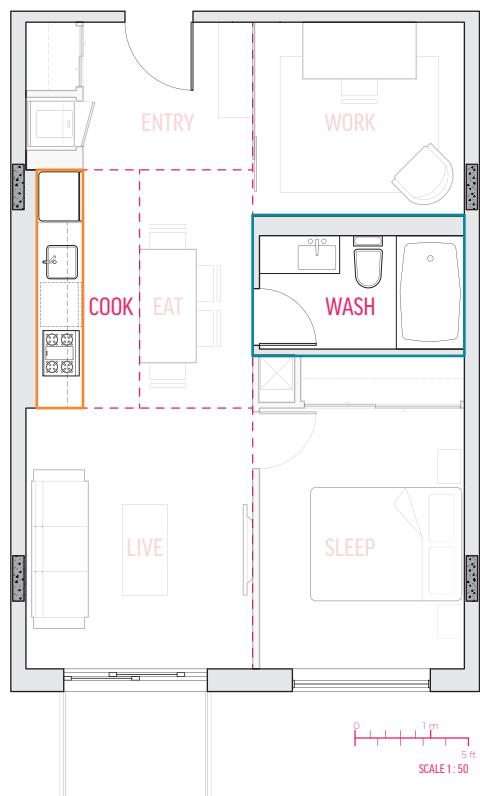


*Fig. 3.29 Condo bathtub converted into crib*



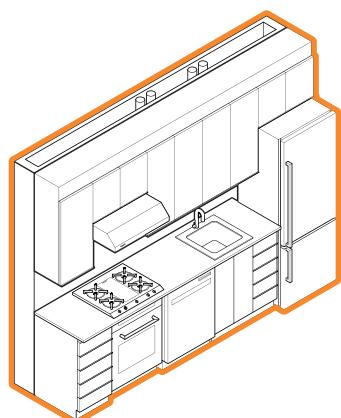
*Fig. 3.31 Under sink storage converted into closet for baby*

## TYPICAL CONDO UNIT LAYOUT



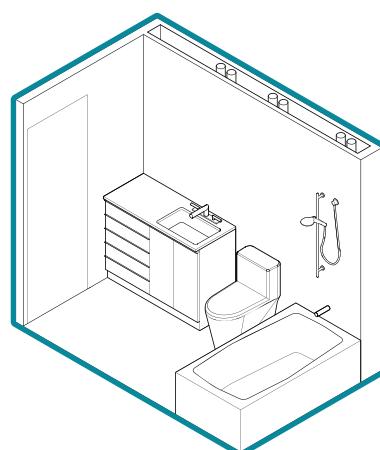
## KITCHEN (COOK)

- + Linear, one-sided kitchen allows for unimpeded circulation through narrow unit
- + Appliances back on double-sided plumbing chase wall shared between units, where possible
- + Basic finishes package typically includes cooking range, dishwasher, sink, and fridge
- + Built-in upper and lower cabinets provided



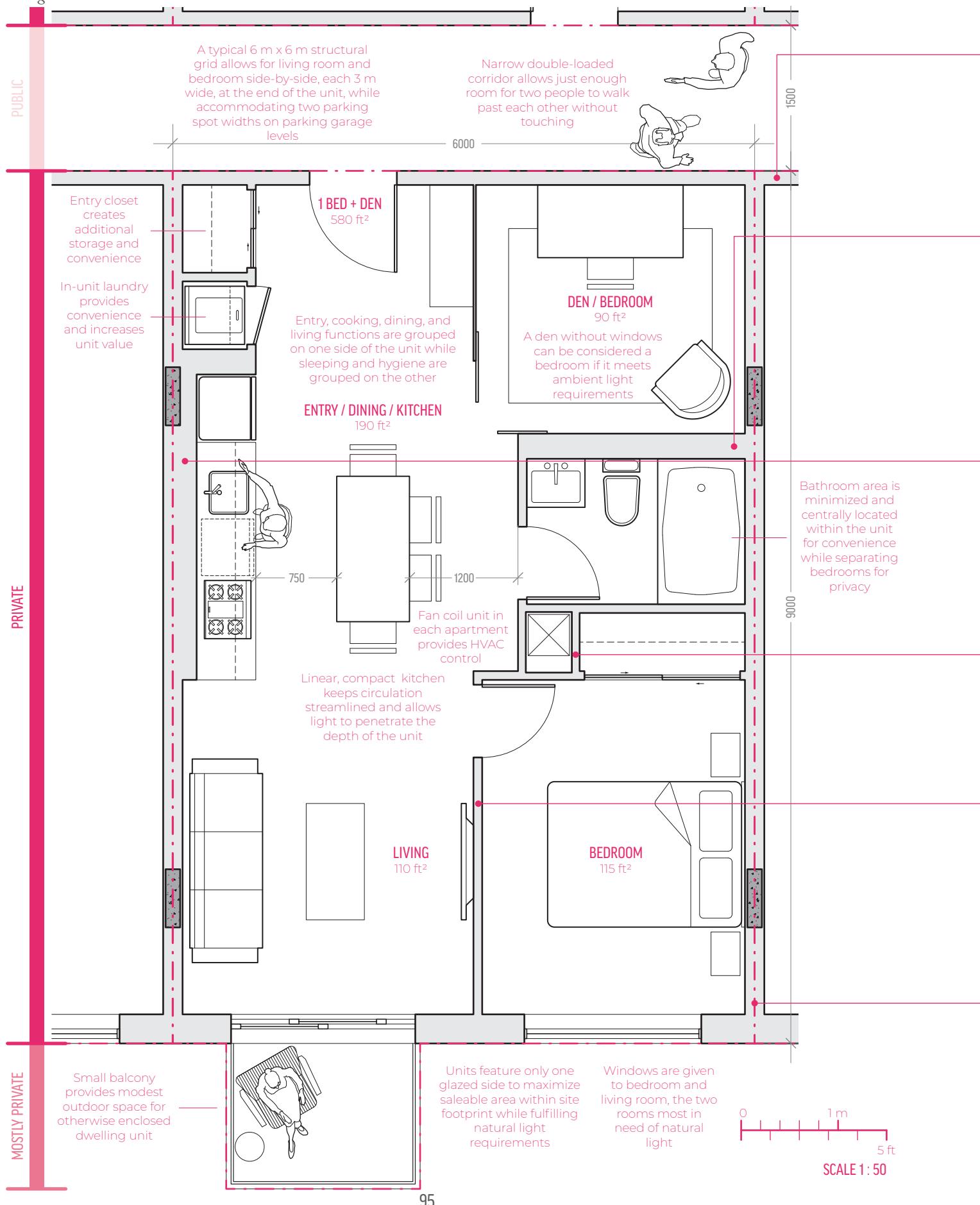
## BATHROOM (WASH)

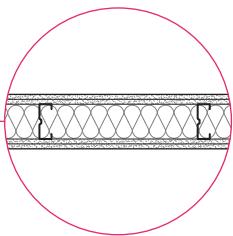
- + Units feature at least one four-piece bathroom, including bathtub with shower attachments
- + Bathroom dimensions are almost at minimum: length only as long as necessary to fit fixtures, width matches bathtub length
- + No windows provided



*Fig. 3.32*  
Typical condo unit configuration and components

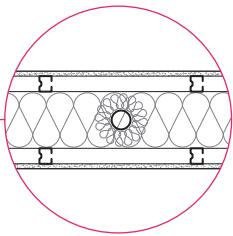
## Intergenerational Solutions



**CORRIDOR-SUITE DEMISING WALL**

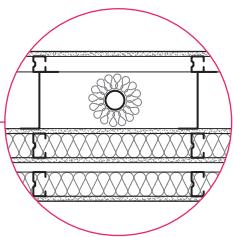
1 HR Fire Rating

13 mm	Gypsum board
13 mm	Gypsum board
92 mm	Steel studs @ 600 mm oc
	SAFB (Sound Attenuation Fire Blankets)
13 mm	Gypsum board
13 mm	Gypsum board

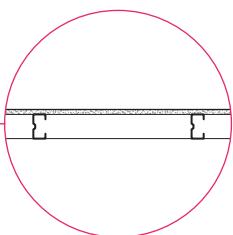
**BACK-TO-BACK PLUMBING CHASE**

Plumbing chase walls between rooms

13 mm	Gypsum board
41 mm	Steel studs @ 400 mm oc
150 mm	Cross-bracing @ 1200 mm oc vertically
150 mm	Air space filled with sound insulation
41 mm	Pipes wrapped with sound insulation
41 mm	Steel studs @ 400 mm oc
13 mm	Cross-bracing @ 1200 mm oc vertically
13 mm	Gypsum board

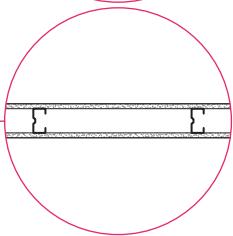
**SUITE-SUITE DEMISING WALL WITH PLUMBING CHASE**

13 mm	Gypsum board
41 mm	Steel studs @ 400 mm oc
150 mm	Air space
13 mm	Pipes wrapped with sound insulation
64 mm	Gypsum board
13 mm	Steel studs @ 600 mm oc
13 mm	SAFB (Sound Attenuation Fire Blankets)
13 mm	Gypsum board
25 mm	Air space
64 mm	Steel studs @ 600 mm oc
13 mm	SAFB (Sound Attenuation Fire Blankets)
13 mm	Gypsum board

**FURRED WALL**

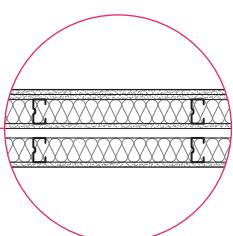
Surrounding FCUs

13 mm	Gypsum board
41 mm	Steel studs @ 400 mm oc

**INTERIOR PARTITION**

Typical dividing walls in interior of units

13 mm	Gypsum board
64 mm	Steel studs @ 400 mm oc
13 mm	Gypsum board

**SUITE-SUITE DEMISING WALL**

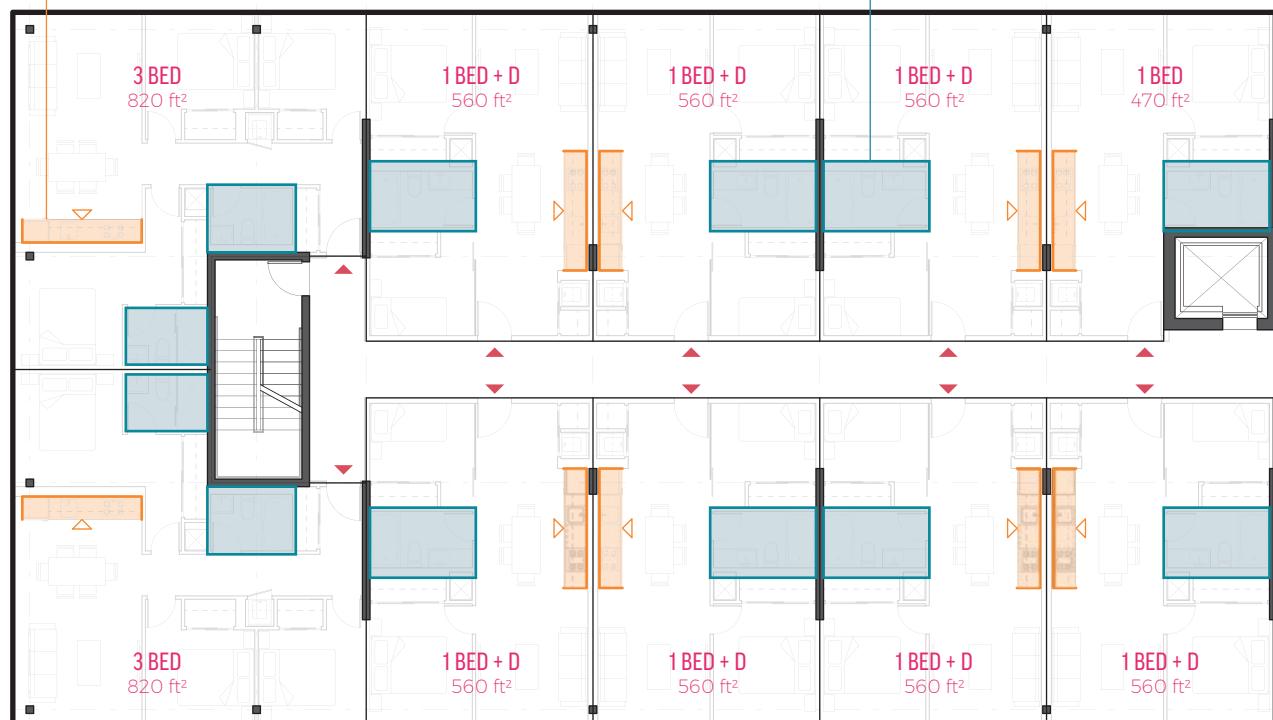
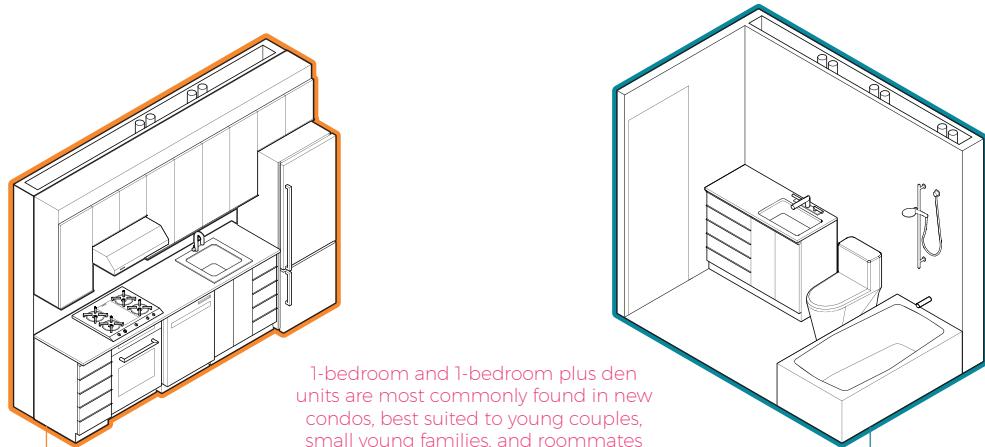
1 HR Fire Rating

13 mm	Gypsum board
13 mm	Gypsum board
64 mm	Steel studs @ 600 mm oc
13 mm	SAFB (Sound Attenuation Fire Blankets)
13 mm	Gypsum board
25 mm	Air space
64 mm	Steel studs @ 600 mm oc
13 mm	SAFB (Sound Attenuation Fire Blankets)
13 mm	Gypsum board

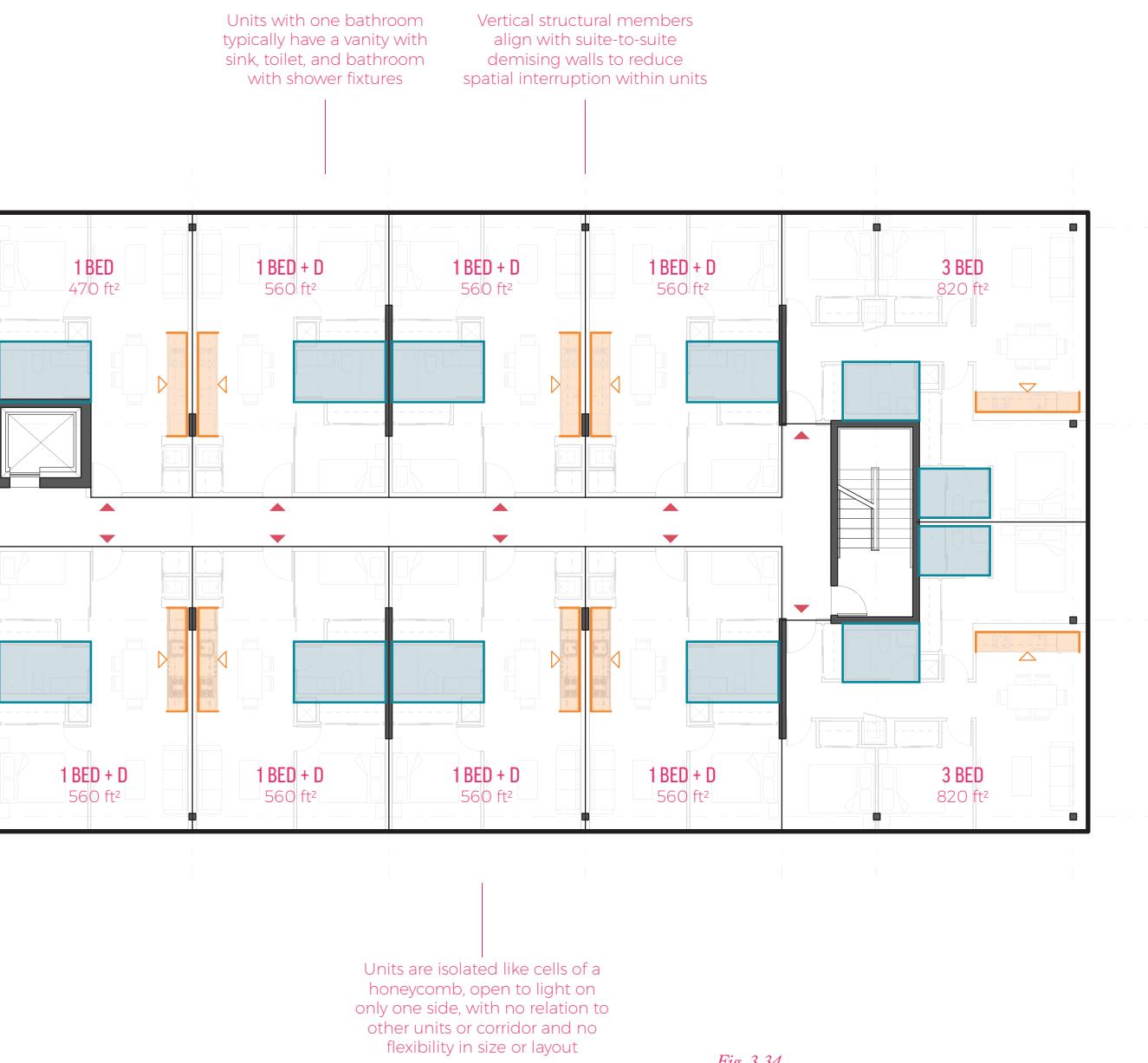
Fig. 3.33

Typical condo unit plan with wall assemblies

HYPOTHETICAL CONDO FLOOR



Corner units usually have more bedrooms and an additional three-piece bathroom



*Fig. 3.34*  
Typical condo unit deployed over an entire floor

under the sink as a small closet.<sup>44</sup>

Flexible modular units provide an alternative to the rigidity of the typical condo. This flexibility can be achieved quite readily using the existing principles of condo design as a base. While a typical condo is designed like a beehive, comprised of self-contained cells entirely isolated from one another, a flexible building is imagined as a modular, fluid structure where each unit is specifically designed to be combined with its neighbouring units. The typical one-bedroom plus den unit is used as the base module, subdivided into two halves following the existing division between communal functions (entry-kitchen-dining-living side) and private functions (bedroom-bathroom side). While the whole unit is bought and sold in its entirety in the same way as conventional condo units, each half can be rented independently from the other, either to neighbouring units as additions or to new tenants as a studio unit. This flexibility gives households the option of upsizing or downsizing their home in half-unit increments to adapt to their changing lifestyle.

This modularity opens up many options as to how to proceed with a unit upon its vacancy, and a residents' association will be relied on to administer the appropriate option depending on the needs of the original owner of the unit, the needs of the unit occupants directly adjacent, and the needs of inhabitants elsewhere within the building at the time. If the original owner is selling the unit, it may be sold to and occupied by a new owner, or sold to an adjacent unit owner as an addition to their existing home if they feel the need to do so. It can also be sold back to the building association, to be administered as demand arises in the future among existing building tenants or in the open market. If the original owner wishes to vacate the unit but not sell, the unit can be rented out wholly or in halves to adjacent neighbours as additions, or wholly to a tenant, or a combination of the two. (*Fig. 3.35*)

The governing principle is that each module — the one-bedroom plus den basic unit — must always be bought and sold in its entirety, while the two halves of the module can be rented out together or separately. This ensures the ability of owners to resell their units in the future, as it would likely be quite difficult to find a buyer of a half-unit, yet still encourages unit owners to embrace the flexibility of their units through rental — a more economical process that can be initiated, altered, or terminated much more quickly and easily than the process of purchasing a property. It gives occupants the ability to change the size and layout of their home in manageable, half-unit increments on a negotiable basis as their needs and the needs of their neighbours change over time. The result is a building with infinite possible unit mixes that adapt to the needs of the residents over time. (*Fig. 3.36*) The building can also still function as a typical condo, if no users happen to require flexibility at a given moment.

A high level of flexibility and movement throughout the building can

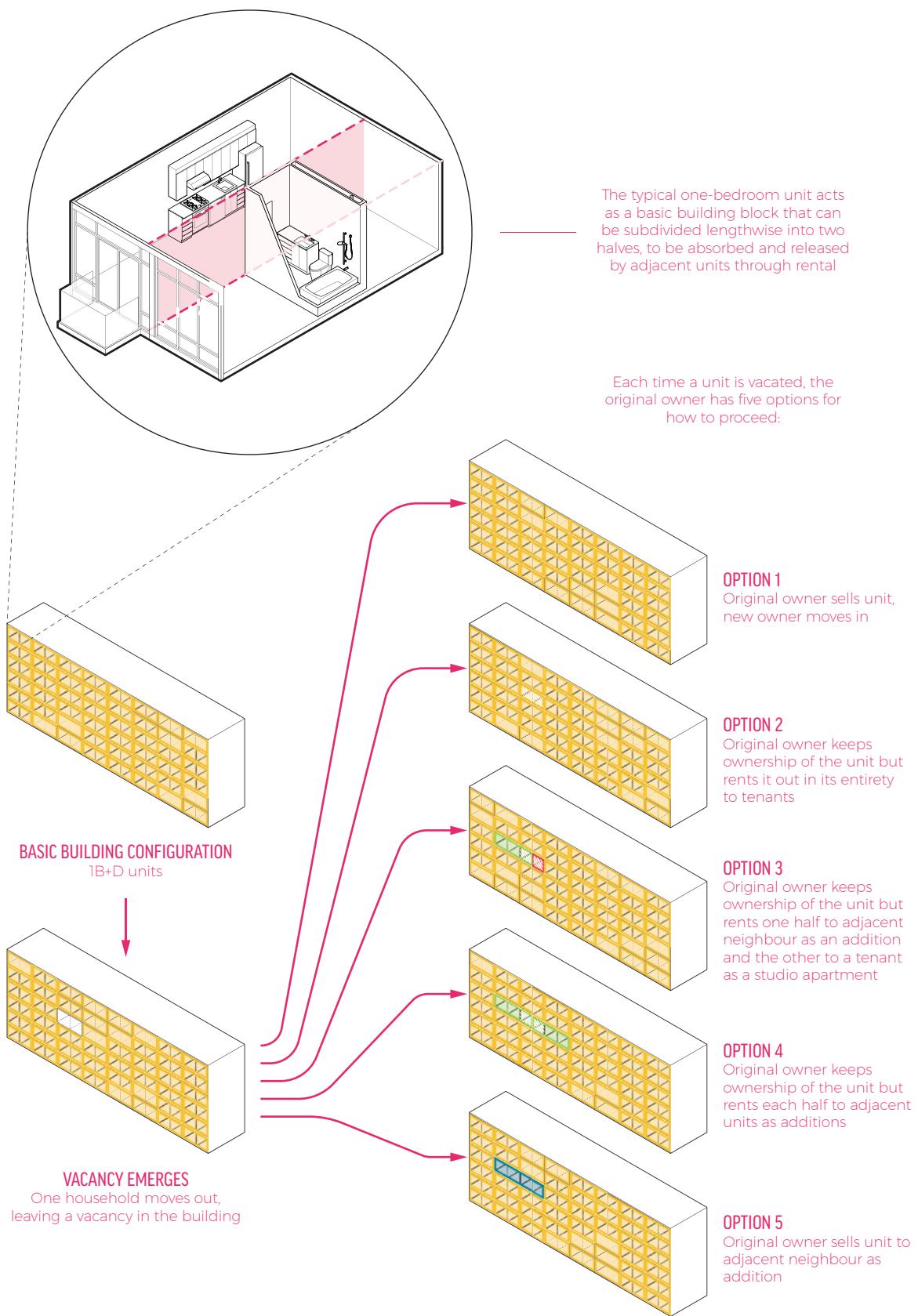
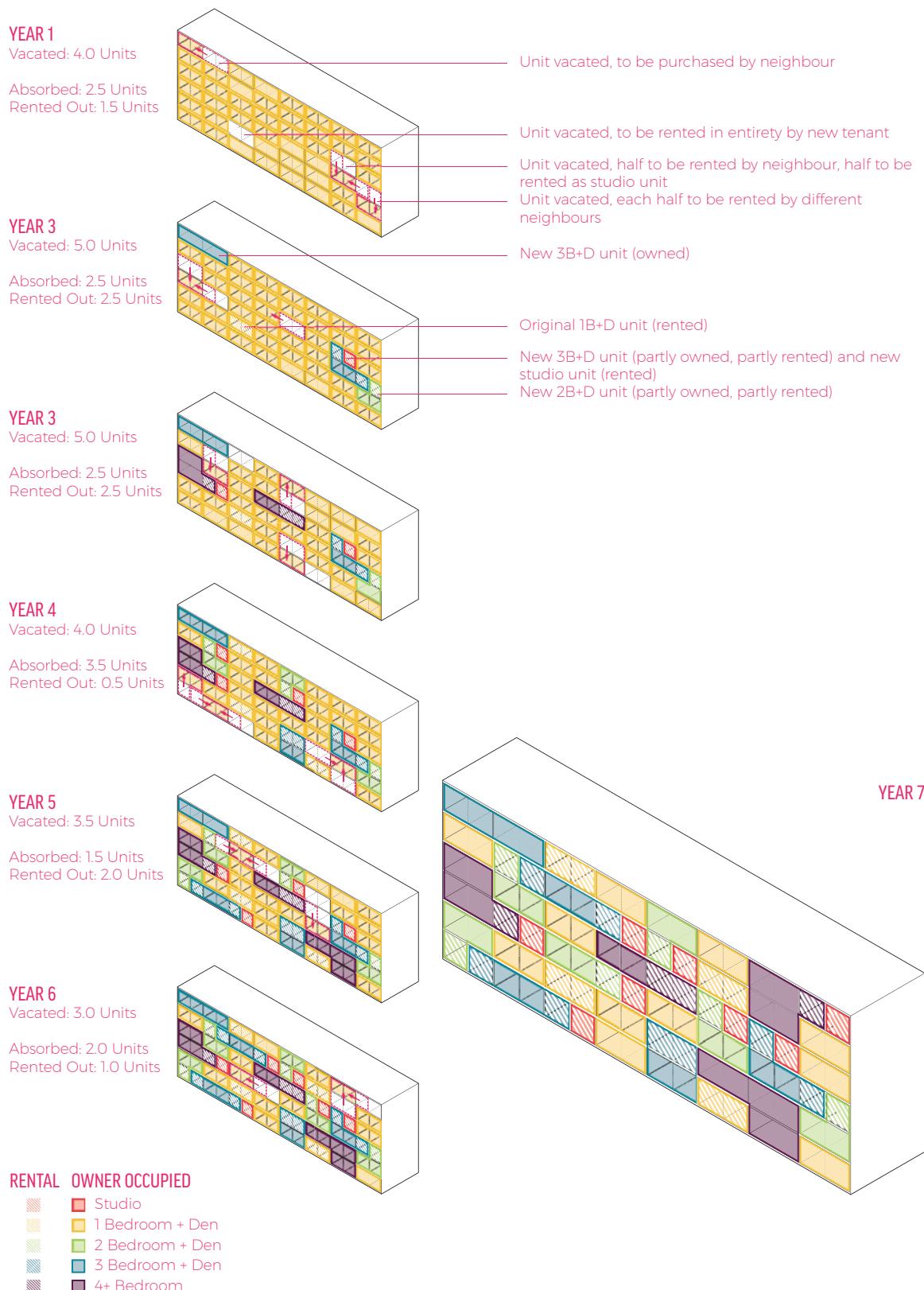
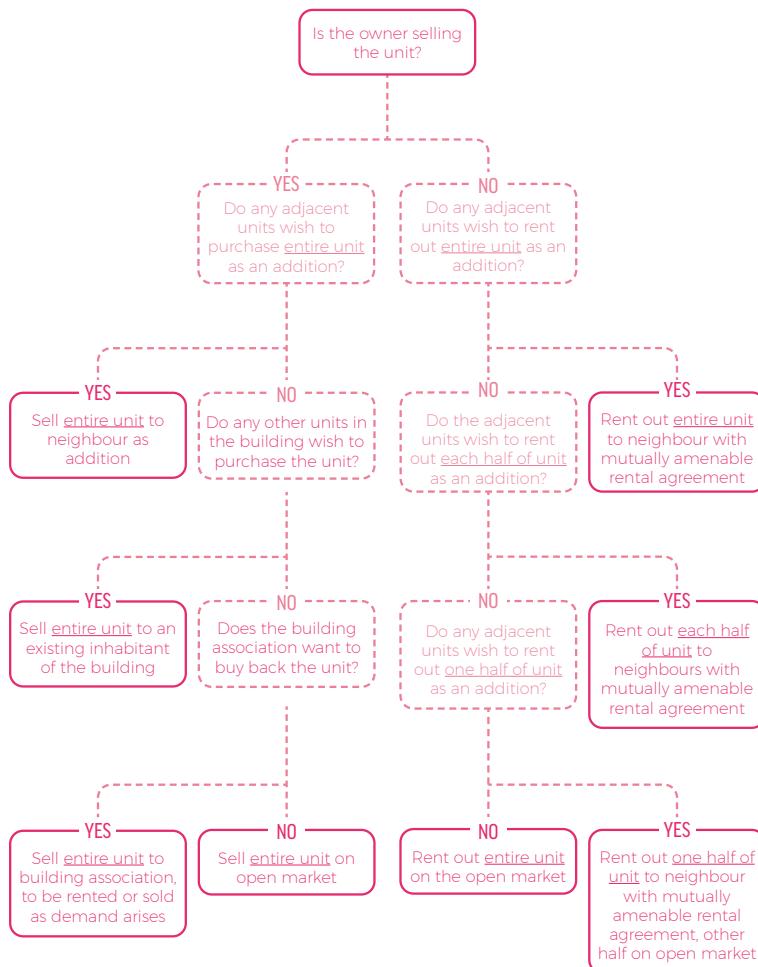


Fig. 3.35  
Flexible unit building block



*Fig. 3.36*  
Hypothetical unit configuration over time

create potential for administrative or legal confusion and messiness when a unit becomes vacant. To combat this, the residents' association must follow pre-determined protocol for finding occupancy of a newly vacated unit, with right of first refusal given to occupants of the units directly adjacent to the unit in question. Then, priority will be given to other owners within the building who may want to relocate or acquire another property. Then, the residents' association can choose to purchase it back — on behalf of the building — and administer as it sees fit or sell on the open market. In this way, a decision tree is enacted to ensure the continued flexibility and fairness



*Fig. 3.37 Protocol decision tree to be executed when units are vacated*

of the process in the future. (*Fig. 3.37*)

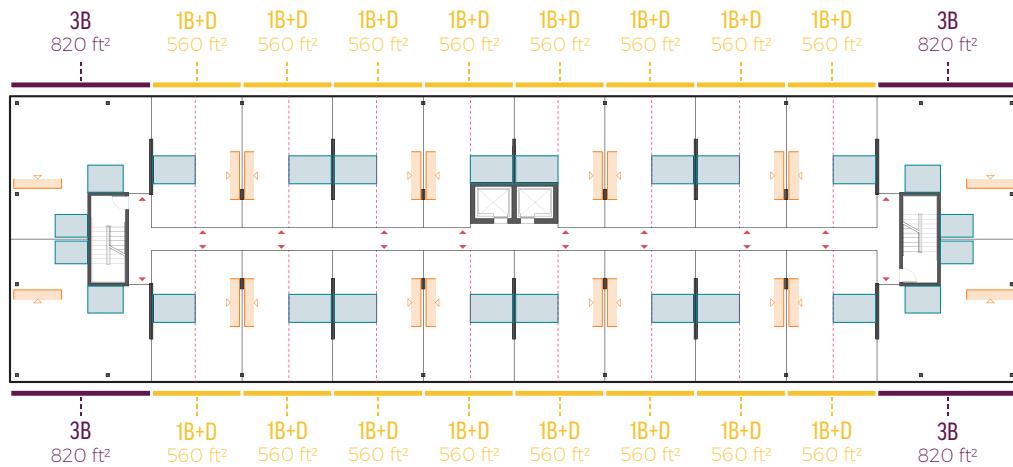
However, this strategy requires some modification before it can perform most effectively. The limitations to this strategy in its current form are made clear when laid out in an entire floor of a hypothetical condo tower (*Fig. 3.38*). In the default configuration (Year 1), prioritizing 1-bedroom plus den units, the number of kitchens and bathrooms in each unit is appropriate: each unit has one kitchen, the 1-bedroom plus den units have one bathroom, and the 3-bedroom units have two bathrooms — one master ensuite and one additional. If the unit configuration were fixed permanently, as they are in typical condo buildings, there would be no problem. When the units are open to flexibility, however, the number and positioning of kitchens is disrupted. For example, when one 1B+D unit is vacated (Year 2) and its two halves are rented independently — one half to the adjacent neighbour, the other as a studio apartment — the second kitchen that is added to the newly enlarged unit is redundant, while the studio unit has only a bathroom without a kitchen. This issue becomes further exacerbated when a more diverse mix of unit sizes emerges (Year 5) and many kitchens throughout the floor become redundant. While these extra kitchens do not prevent any units from being expanded, they do restrict the layouts of these enlarged units as they are permanent fixtures and make the spaces rather strange — two kitchens within less than 1000 ft<sup>2</sup> is both unheard of and not useful, except in very unusual circumstances. On the other hand, it is also impractical to demolish these redundant kitchens whenever a unit is expanded and rebuild it when it is contracted again, especially when these half-units rented from a different owner.

Further, when the existing unit layout for the 1B+D units is divided into halves, one half contains the kitchen while the other contains the bathroom, potentially resulting in studio units that have a bathroom but no kitchen, or a kitchen but no bathroom. It is impractical to build and demolish entire kitchens or entire bathrooms every time a studio unit is created and re-absorbed, yet it is also unethical and perhaps illegal to not provide any kind of cooking area or bathing facilities in these units no matter how small. Additionally, when the half containing the bathroom is converted into a studio unit, the bathroom in its current position takes up the full width of the unit, leaving no room for circulation between the front and back of the unit.

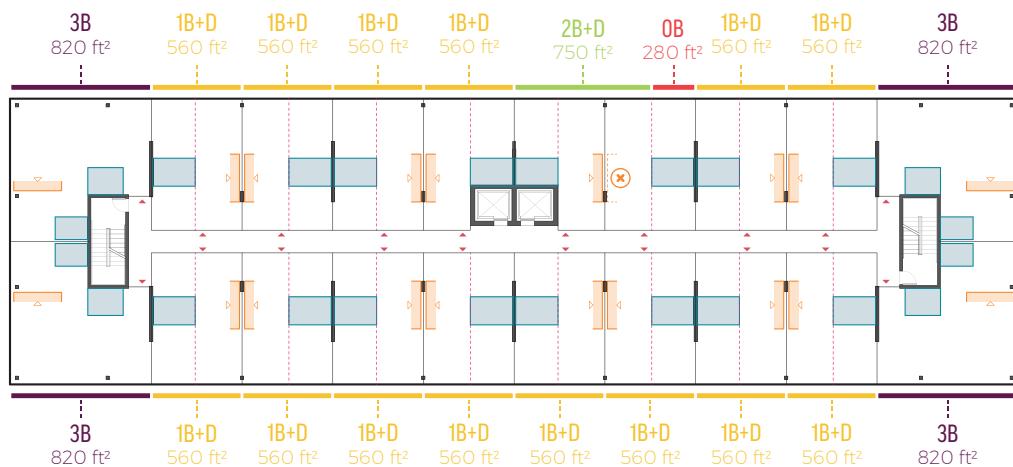
To resolve these issues, it must first be acknowledged that the typical one-bedroom plus den module has been designed for maximum financial efficiency and gain on the part of the developer. Any alterations to the design will likely cause the cost of constructing the unit — and the building as a whole — to rise. With sensitivity to economic concerns, a “best practice” flexible unit with optimal design but highest cost is proposed in addition to two intermediate schemes that are less ideal but also less costly. Each

**YEAR 1**

In the basic configuration, with 1B+D units comprising the bulk of the units and 3B units in the corners, the number of kitchens and bathrooms is appropriate - every component is in use with no redundancies.

**YEAR 2**

Once the configuration is altered even slightly, the number and placement of kitchens is no longer valid. In this example, the new 2B+D has one extra kitchen while the new studio unit has none.

**YEAR 5**

As more configurations become realized, more kitchen components become redundant.

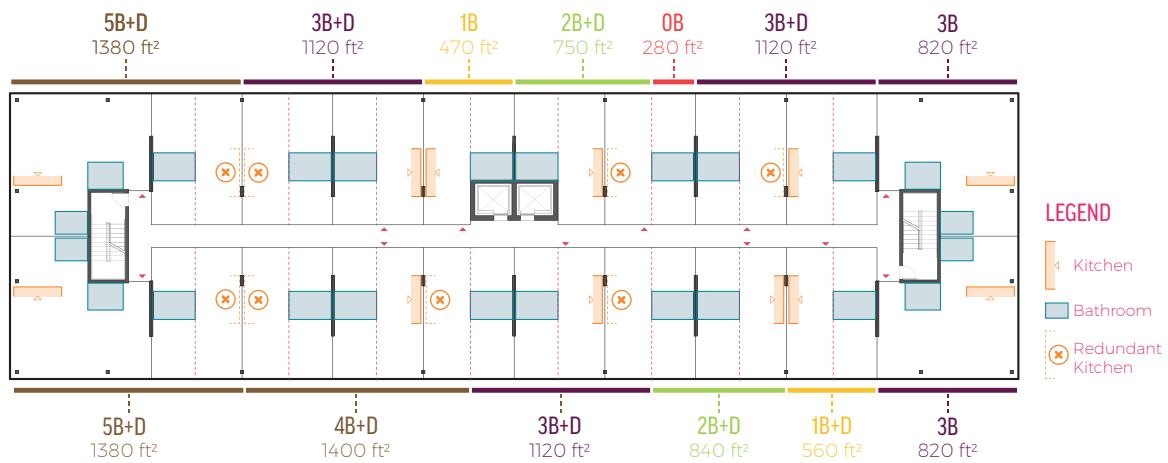


Fig. 3.38

Hypothetical unit mix progression over time using typical condo unit split into halves

#### TYPICAL 1B+D UNIT (GRADE: D)

If the typical 1B+D unit layout were subdivided in its existing form into halves, the bathroom-containing half would not be able to function as a studio unit due to lack of space between the new demising wall and the existing bathroom.

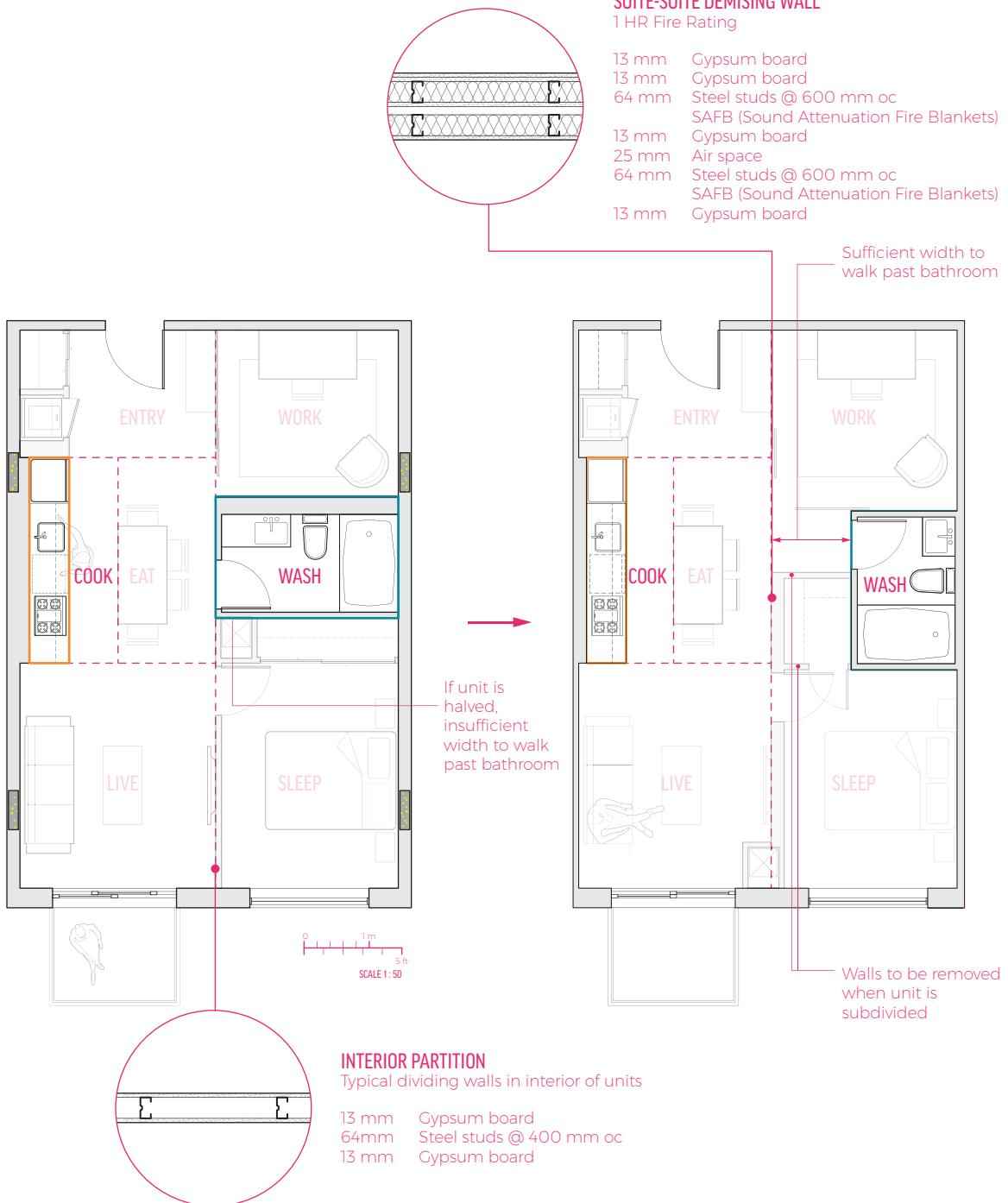


Fig. 3.39

Typical 1-bedroom plus den unit layout vs. flexible layout with rotated bathroom

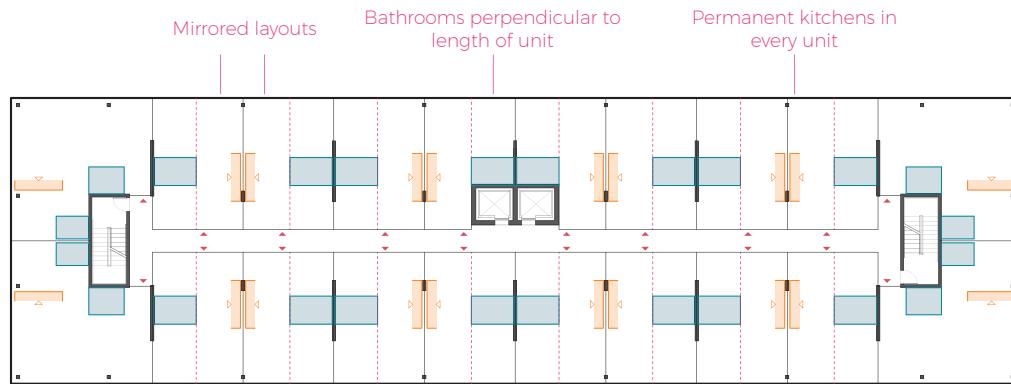
scheme is identified by a letter grade, with the typical one-bedroom plus den unit rated a D, the next-best scheme rated C, the next B, and the best practice A. While an even better scheme than A could arguably be attained with larger floor areas, A is the most plausible best practice scheme within the confines of mid- to high-density housing in a metropolitan area.

The first upgraded scheme, C, is comprised of five design changes. First, rotate the bathroom component 90 degrees to make the long dimension align with the length of the unit, creating a path between the front and back of the unit when subdivided into 3-metre wide halves (*Fig. 3.39*). The rotated bathroom still works in the basic 1B+D unit, giving slightly more width to the kitchen/dining area and taking some length from both the den and the bedroom, and works in the studio unit configuration as well. Second, designate that only the bathroom-contained half of the unit can be rented out as a studio apartment while the kitchen-contained half cannot be inhabited in itself, and must be part of an addition. Third, build the continuous wall running down the centre of the unit subdividing it into halves using the same suite-to-suite demising wall assembly that encloses the unit, with fire-rated sound insulating blankets and multiple layers of fire-rated gypsum board. When the unit is used as a whole, pre-cut openings in the walls provide access across the wall, and filled in when the unit is divided. Rather than building typical interior partition walls, this over-building of the main centreline datum prepares the unit to be appropriately fire-rated and sound insulated if and when it gets subdivided into two halves, minimizing demolition and construction in the conversion process.

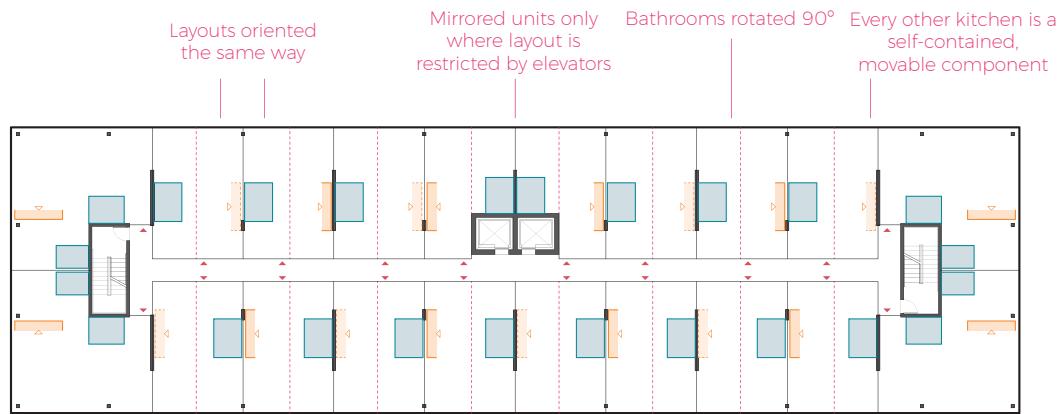
Fourth, looking the floor plate as a whole (*Fig. 3.40*), rather than mirroring adjacent unit layouts, maintain the same orientation of layouts on all adjacent units to create a more even distribution of bathrooms and kitchens across the residential floor to better accommodate changing unit boundaries.

Fifth and finally, replace approximately half of the built-in kitchens on a given floor with portable, modular kitchens, distributed roughly evenly across the floor. In other words, every other unit on the floor has a self-contained, portable kitchen instead of a traditional, permanent one. While this notion may seem entirely unfamiliar or even bizarre in the context of North American residential architecture, it is a long-standing common practice in many European countries like Italy and Germany. Much in the way Canadian apartments may come unfurnished, containing bathroom and kitchen fixtures, built-in closets, laundry, but no furniture, or furnished, including all furniture and sometimes linens and tableware as well, apartments in Italy also come in a variety of states. Apartments can be *arredati*, meaning completely furnished including beds, tables, and chairs, *parzialmente arredati*, meaning partially furnished including kitchen and

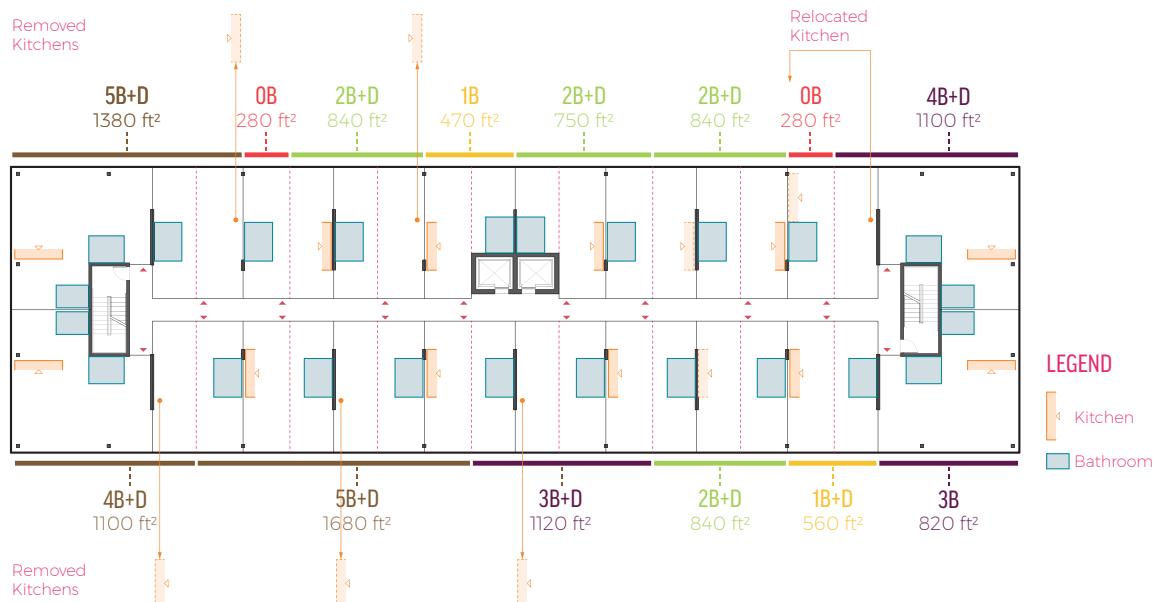
TYPICAL KITCHEN AND BATHROOM CONFIGURATION



FLEXIBLE UNIT KITCHEN AND BATHROOM CONFIGURATION, ALTERNATING MOVABLE KITCHENS



HYPOTHETICAL DEPLOYMENT OF MOVABLE KITCHENS



*Fig. 3.40*  
Kitchen and bathroom configuration in a typical condo floor vs. a flexible condo

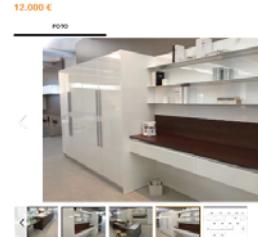
light fixtures, or *vuoti*, meaning empty - these units contain no furniture, light fixtures, or kitchen.<sup>45</sup> Entire kitchen sets, including countertops, base cabinets, upper cabinets, sink, and appliances, can be purchased from the landlord or online (*Fig. 3.41*), and taken to each new apartment. This allows homeowners to retain their investment in the customization of their kitchens according to their own tastes and needs when they move. This principle can be applied to flexible units by providing these self-contained kitchen components in every other unit instead of a permanently installed kitchen. By alternating permanent and movable kitchens throughout the condo floor, kitchens made redundant by the expansion of units can be moved out of the unit and into storage elsewhere in the building, to be owned and kept by the building association. They can also be moved into studio units when they arise, to provide a kitchen area that would otherwise not be available. Occupants of studio units may also choose to omit the kitchen module to free up more space, such as in the case of young students or singles who may not cook very often or people spending most of their time away from their home.

The resulting plan of the overall floor becomes mutable, adapting to the needs of its residents over time (*Fig. 4.38*). From the typical module, unit halves are rented to neighbours or outside tenants until a mix of unit sizes emerges. Large units, like the five-bedroom plus den on the south side, absorb adjacent units and remove portable kitchens as necessary, storing them away until the unit is sold or rented, at which point the new tenant can choose to bring the kitchen back.

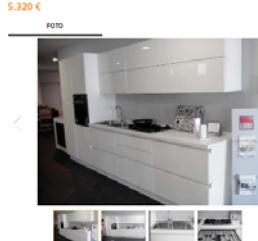
#### *Public-Private Buffer Space*

The typical detached or semi-detached house in downtown Toronto The house is set back from the public sidewalk to create a front yard, privately owned and occupied by public-facing, and a covered front porch attached to the house. By contrast, the typical condominium unit in downtown Toronto shares a wall with its adjacent units, leaving little acoustic separation, and is separated from units opposite by a narrow corridor. The transition from private to public occurs abruptly at the unit entrance.

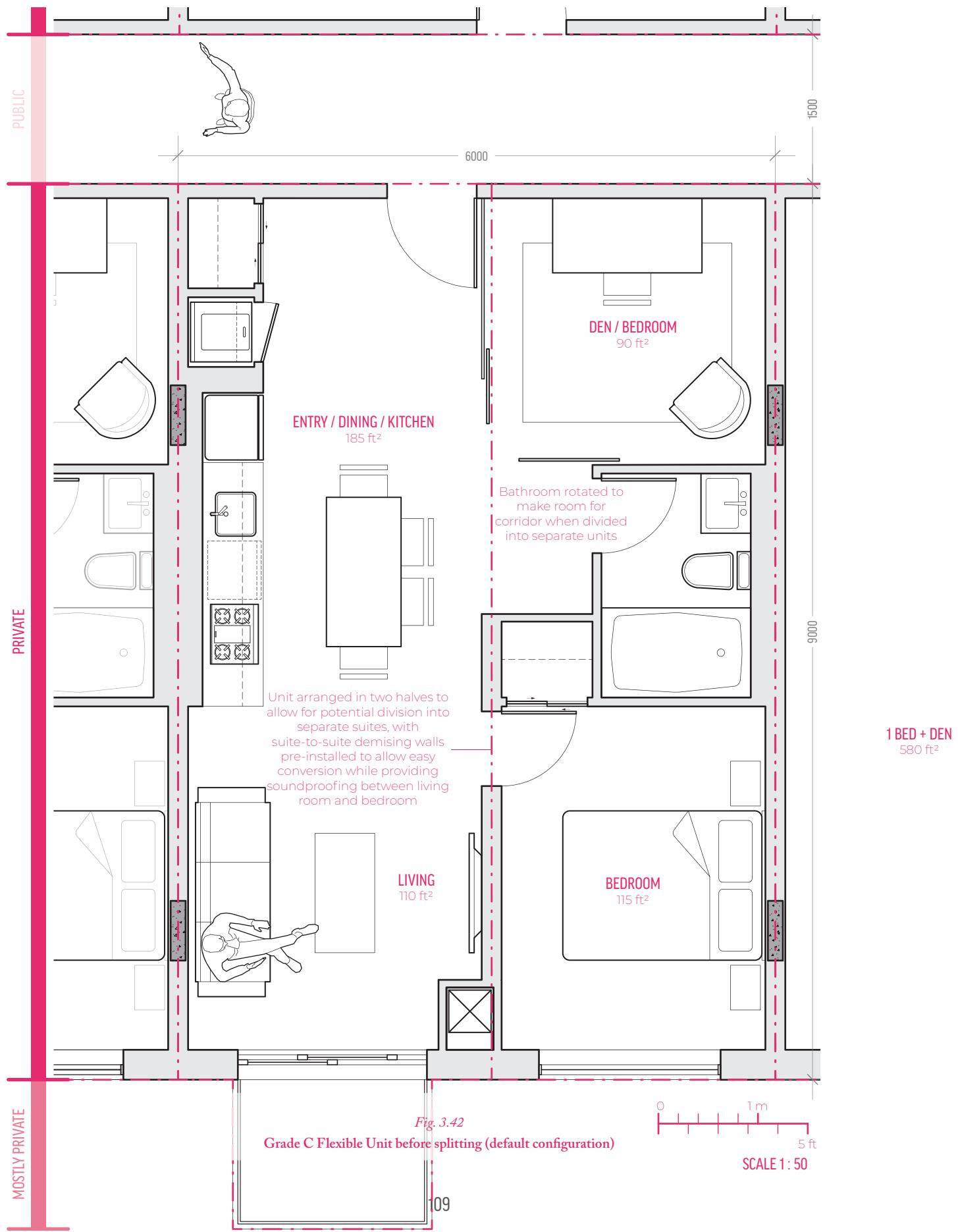
Cucina high level pagata €25.000

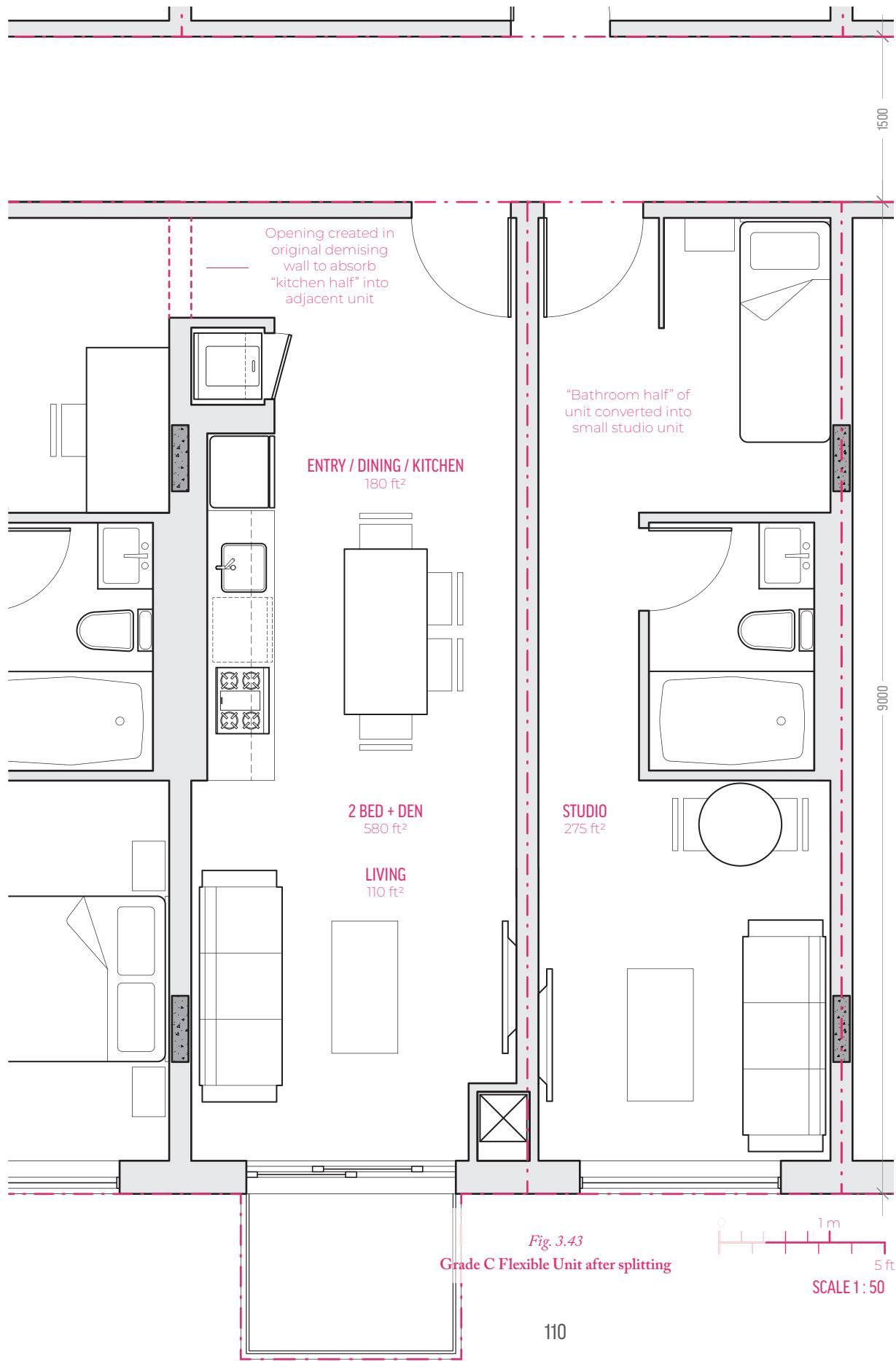


Cucina brava expo lube

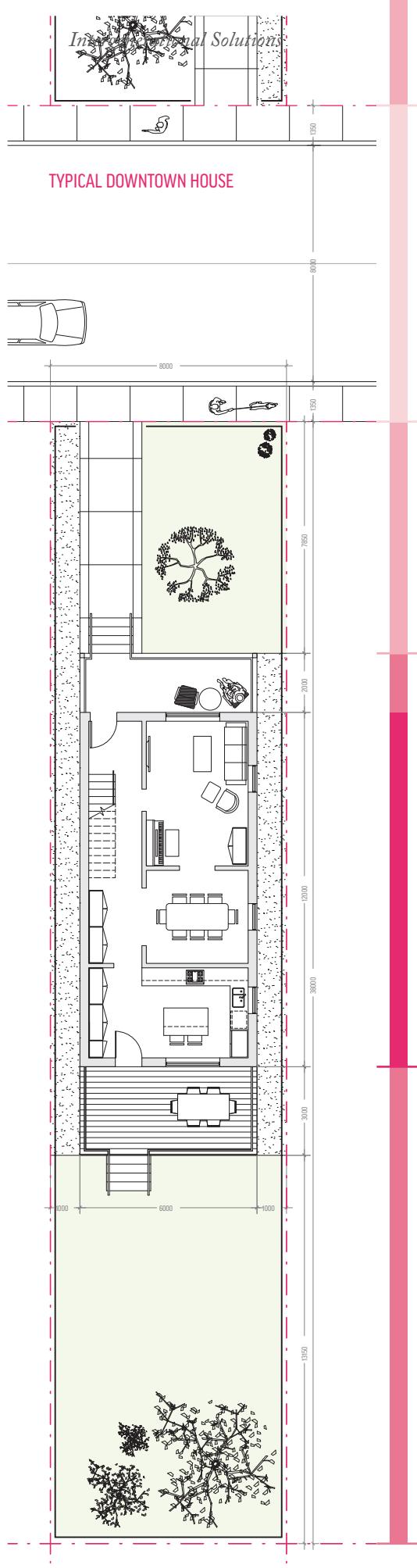


*Fig. 3.41* Entire kitchens for sale on Italian marketplace website

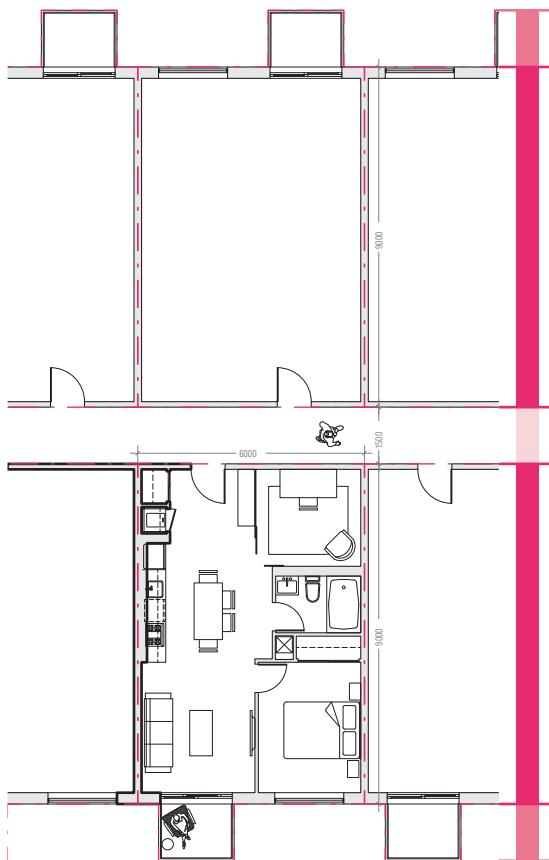




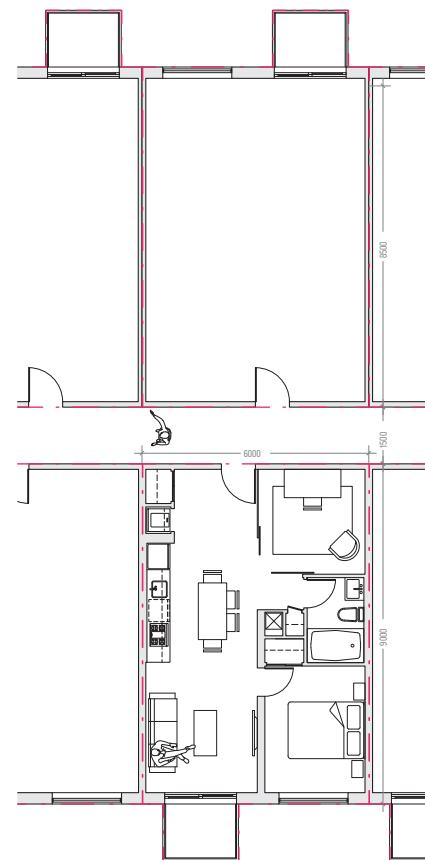
TYPICAL DOWNTOWN HOUSE



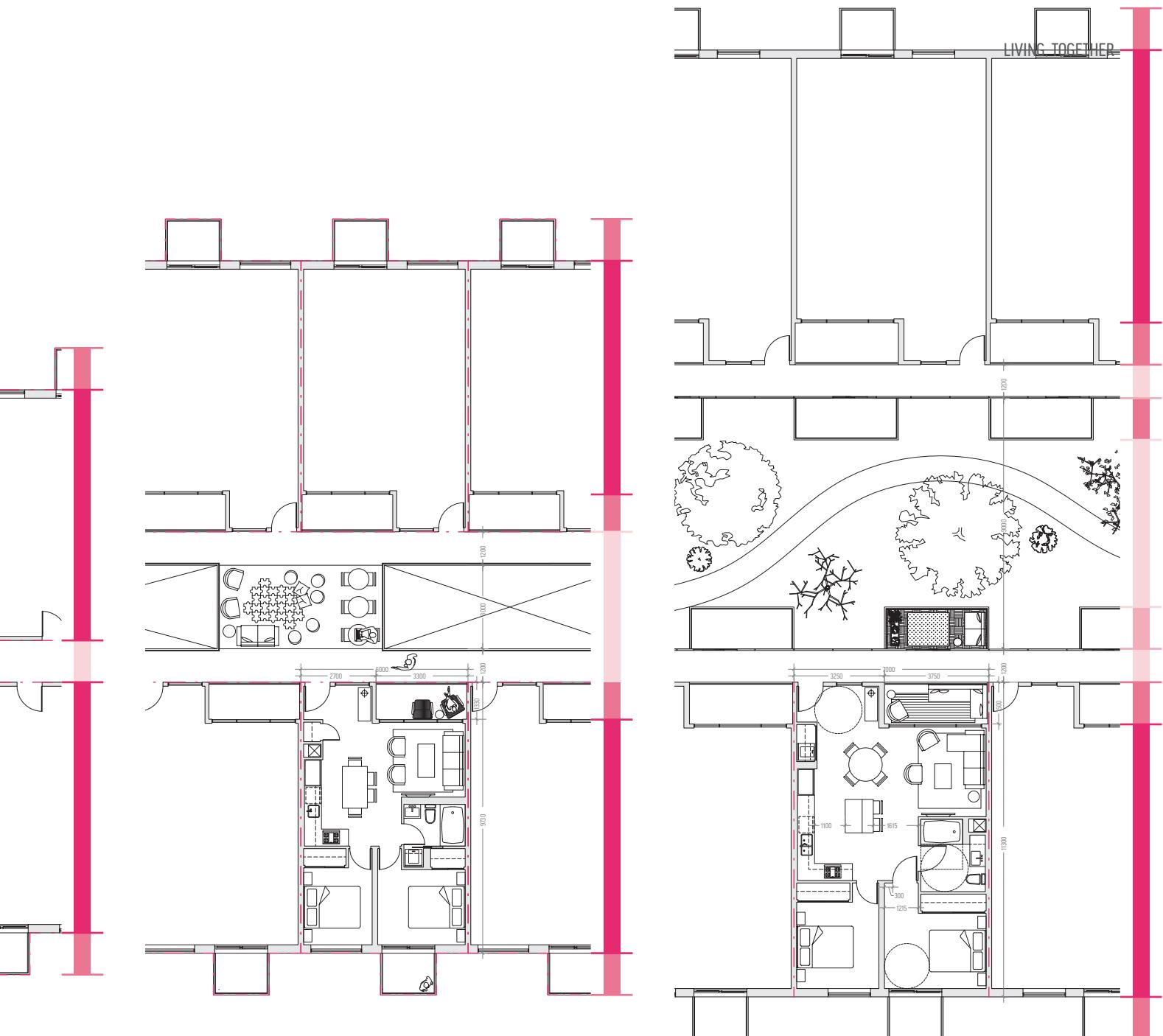
TYPICAL CONDO UNIT (GRADE: D)



FLEXIBLE CONDO UNIT (GRADE: C)

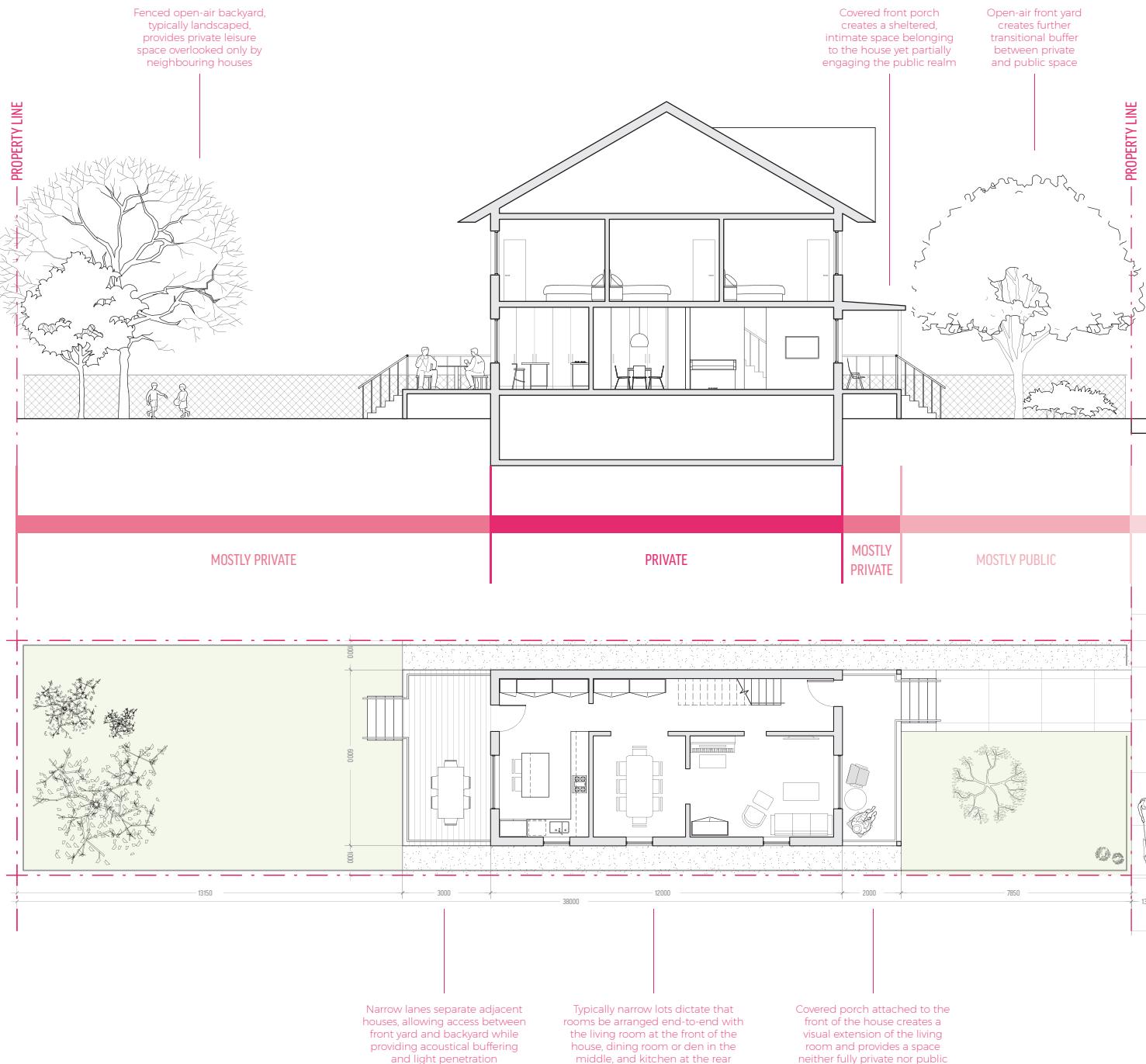


*Fig.  
Privacy and separation between uni*



3.44  
 Housing units in various housing configurations

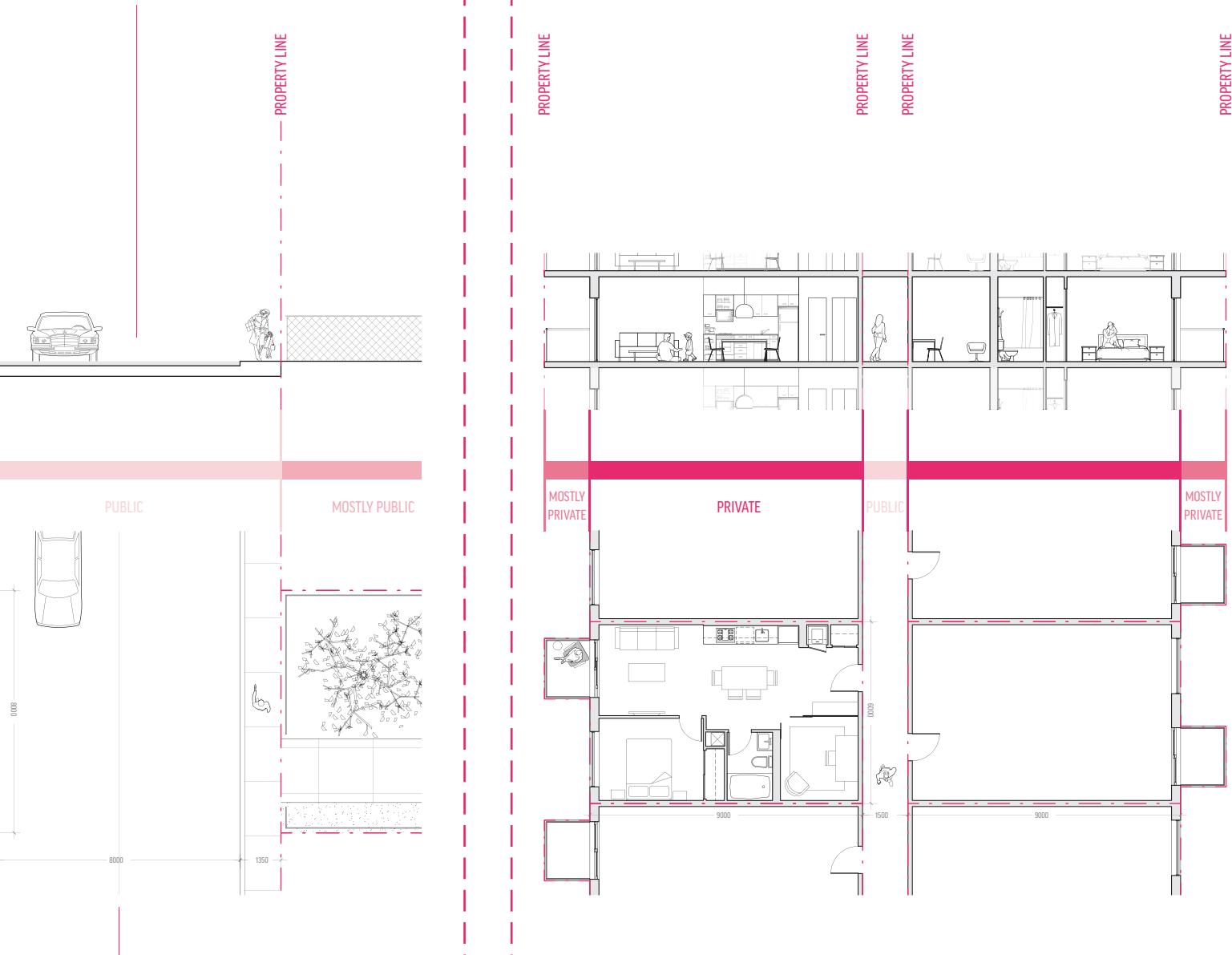
### TYPICAL TORONTO HOUSE



*Fig. 3.45*  
Public-private buffer in houses vs. condos

## TYPICAL TORONTO CONDO

Public realm is defined by sidewalks flanking both sides of a quiet, two-lane road, often with street-side parking



A generous public realm separates houses from one another, creating a sense of autonomy and proprietorship desired by many homeowners

SCALE 1:200

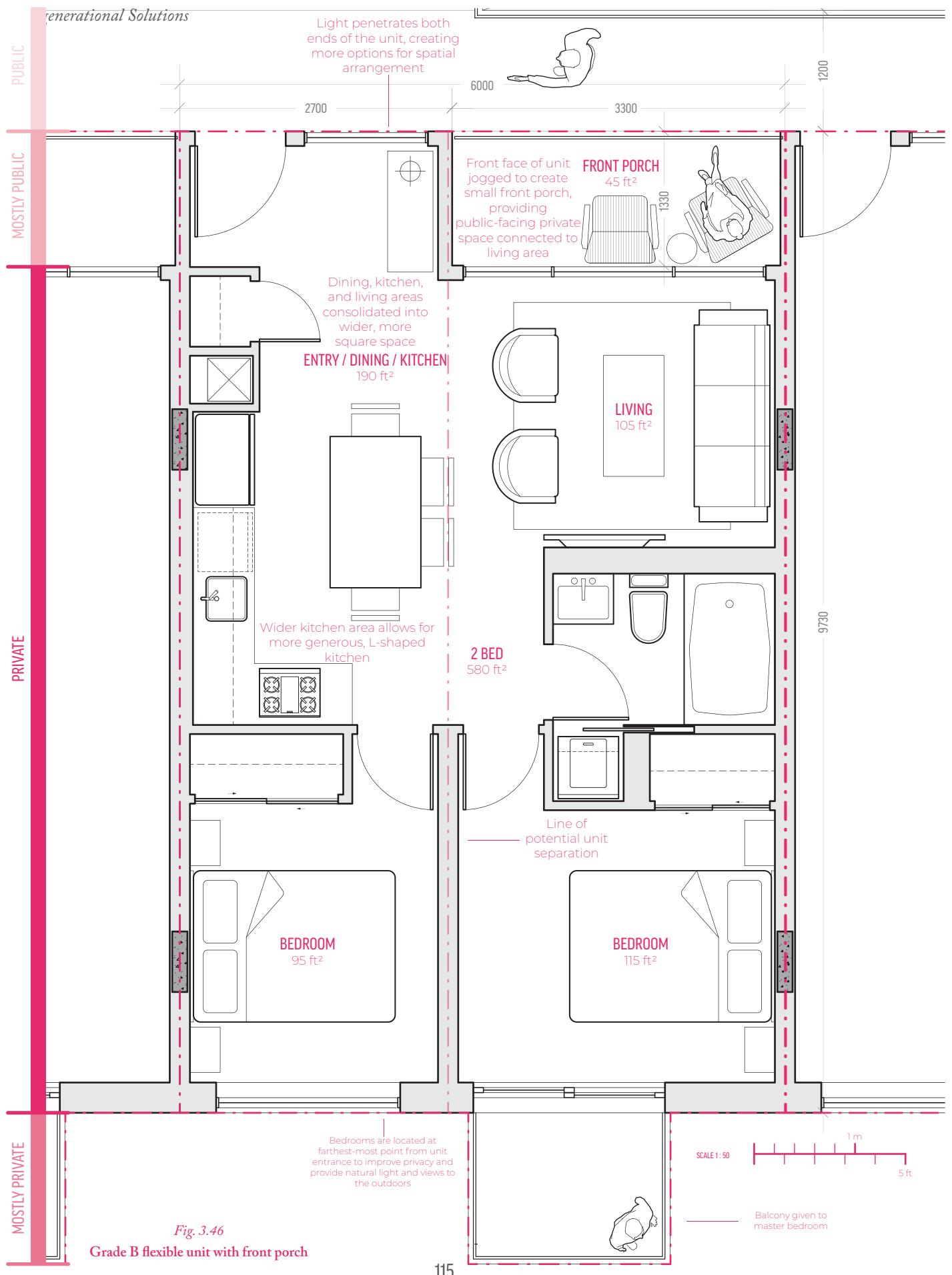
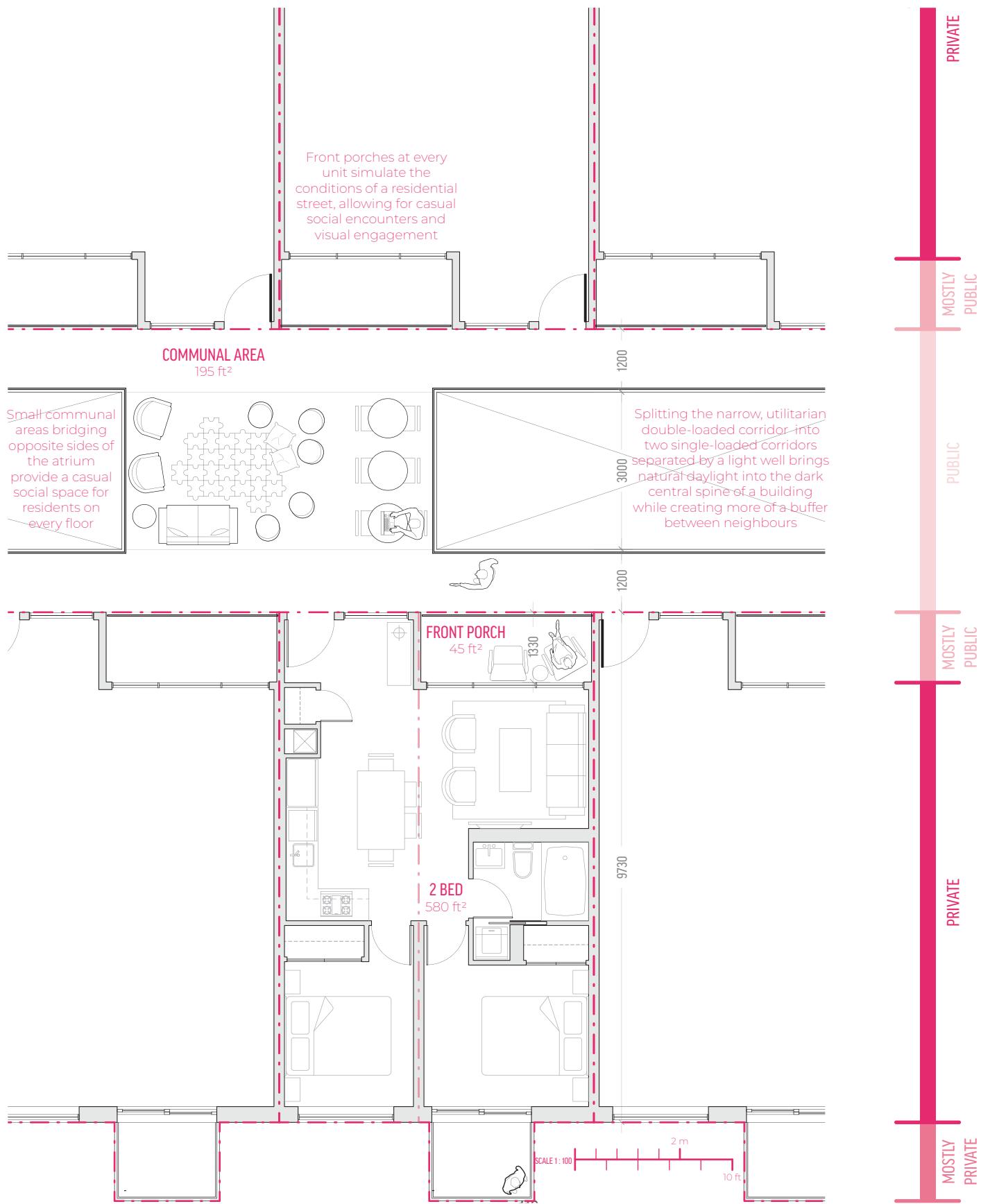
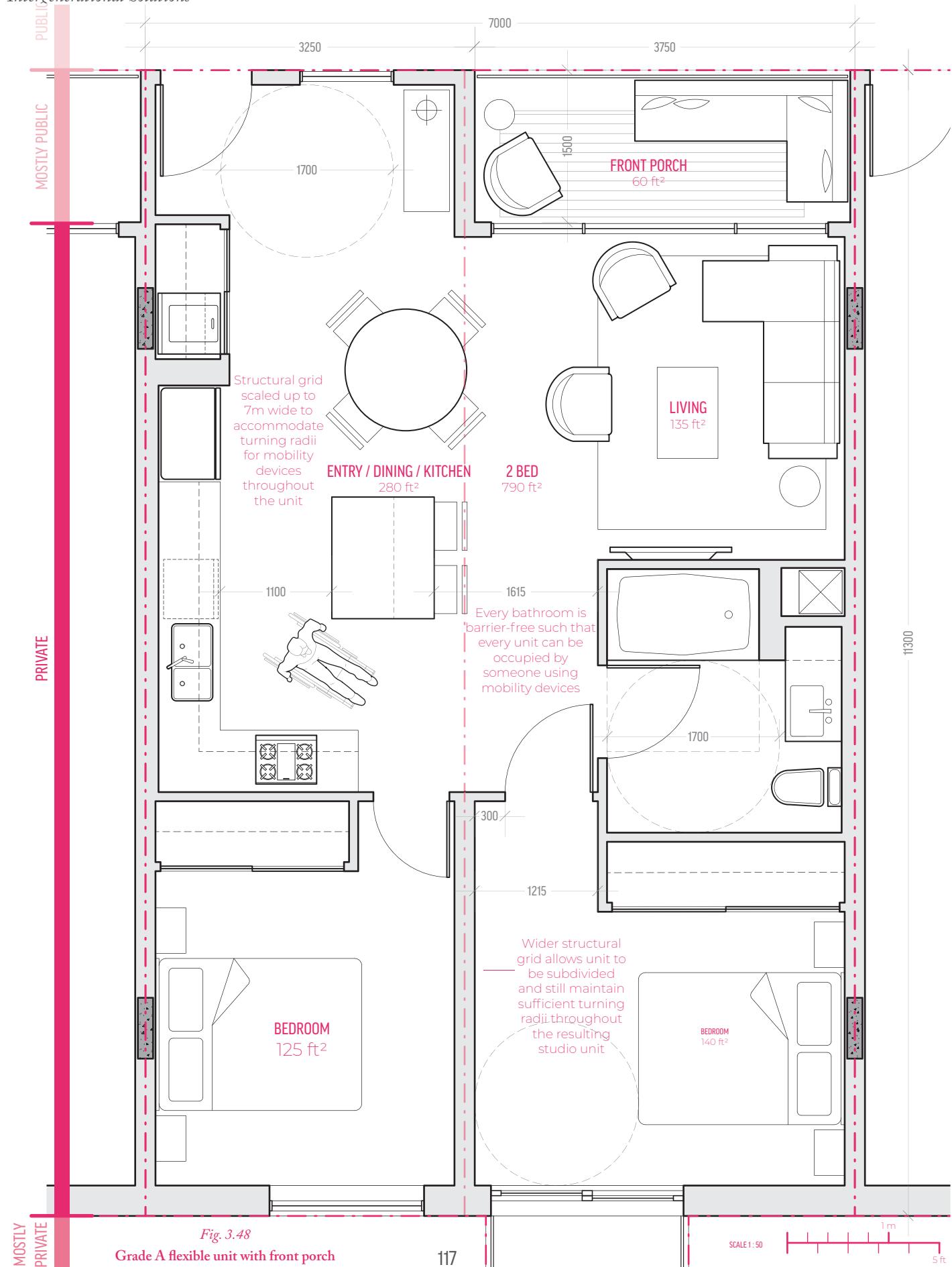


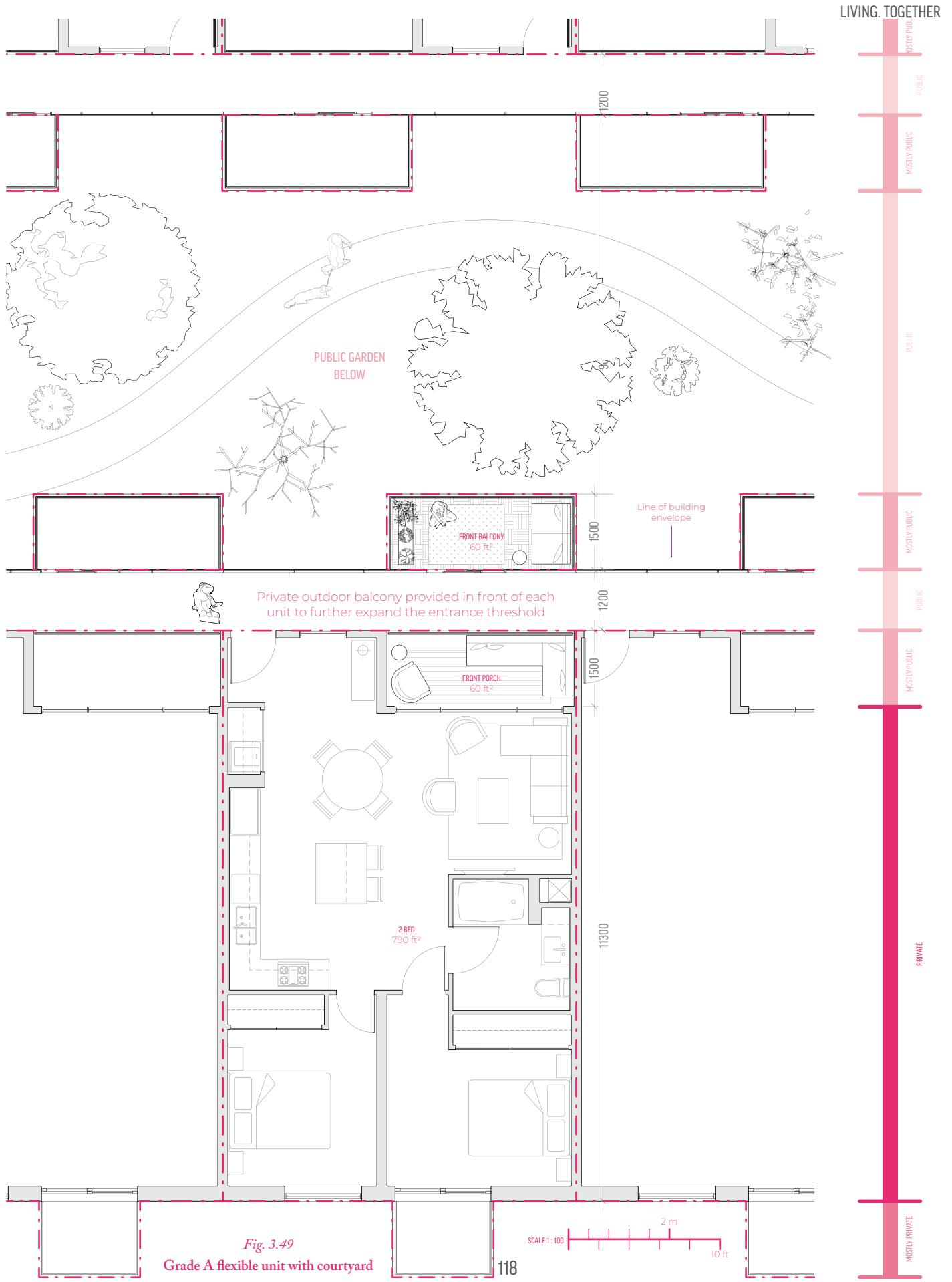
Fig. 3.47

Grade B flexible unit with front porch and wide





Grade A flexible unit with front porch



### *Social Spaces*

The desire for a place to loiter, meet casually with friends, and people-watch is common across people of all ages. Youth tend to be boisterous and animated, feeding off their mutual energies, needing larger and less prescriptive spaces to occupy. Younger adults are fairly flexible and are able to appropriate any suitable space for their socializing needs, often revolving around conversation over casual meals or coffee. Older adults also socialize over food or drink, but are less flexible in the kinds of spaces they can comfortably inhabit. They require comfortable places to sit and linger for extended periods of time that are in view of lively areas like parks or streets, but are slightly distanced from areas of high traffic, so as to maintain some tranquility.

The Merida Youth Center in Spain is a rare example of space specifically built to accommodate youth loitering. With a combination of indoor and outdoor space, covered and uncovered, the center encourages youth to pursue the activities they enjoy, like biking, skateboarding, rock climbing, or simply hanging out with friends on the grass. Most areas are designed without prescriptive functions, leaving decisions on how to use the space to the children. However, young and old adults alike are unlikely to ever use the space without accompanying a child precisely due to the ambiguously programmed yet clearly youth-oriented nature of the center. Naturally occurring social spaces like the steps in front of the Metropolitan Museum in Manhattan reflect the desire for casual spaces to chat with friends or eat a quick lunch while watching life occur on the street, like an amphitheatre oriented toward the urban stage. The very young and very old are less likely



Fig. 3.50 Merida Youth Center



Fig. 3.51 Merida Youth Center covered biking and skateboarding area

to use this space due to its hyper-urban, busy nature, as well as inherent accessibility problems. Older adults, especially those who are retired, often like to congregate in fast food restaurants or cafes like a recently-infamous McDonald's branch in Flushing, New York.<sup>46</sup> A group of elderly Korean seniors descend upon the restaurant in the morning, purchasing \$1 coffees and occupying entire sections of tables for the majority of the day without purchasing any additional food — to the disdain of management. Constant friction between the seniors and restaurant management have led to police involvement, where seniors are ushered out but quickly return the next day or even later in the day. While their dedication to this particular McDonald's is not immediately obvious, the seniors explain that the appeal lies in its close proximity to their homes, large picture windows for easy people-watching, inexpensive food, and casual atmosphere. By contrast, their only alternative is the basement level of their community church, which is poorly lit, isolated, and requires pick-up by the church van service. It is important to these seniors, and seniors in general, to maintain a sense of free will and agency over their lives - the scheduled van pick-up runs counter to this.

Social spaces for seniors are particularly important for a number of reasons. Seniors are often retired, so in the absence of social activity, they tend to stay home and can easily become socially isolated. Scheduled activities can only take up a portion of one's day, so casual social encounters in the public realm are necessary to help keep older adults integrated in society. Most existing public space is difficult for older adults to inhabit due to aforementioned consequences of aging and differing uses of public space, yet few spaces are designed with their unique needs in mind. As with any group of people under-served by their environment, many seniors adapt and appropriate space in perhaps unconventional ways to accommodate their ways of using space. Every day, in the early morning, many malls across Toronto are occupied by older adults practicing *tai chi* in the largest open floor area available. These seniors usually live in the area and attend sessions religiously, for both the physical and social activity. In warmer climates, like San Francisco, older adults have colonized portions of public parks using milk crates as stools and card tables, covered with thin sheets of cardboard for comfort.

A complete intergenerational community should ideally include social spaces that can accommodate the needs of people of all ages, to encourage interaction, or at least create adjacencies between age-specific spaces where possible. These should be designed for both scheduled, formal activities and casual encounters, with a focus on visibility and people-watching.



*Fig. 3.52 The Met Steps, New York City*



Korean Community Services church



Neighbourhood seniors inside McDonald's



*Fig. 3.53 Social spaces for Korean seniors in Flushing, New York*



*Fig. 3.54 Seniors practicing Tai Chi before opening hours at Woodside Square Mall in East Toronto*



*Fig. 3.55 Seniors playing cards on makeshift furniture in Portsmouth Square Park in San Francisco's Chinatown*

### *Accessibility and Universal Design*

To make an intergenerational space welcome to everyone, including people with disabilities, small children, aging people, and pets, it should be designed beyond the legal requirements, to the standard of best practices. While the Ontario Building Code has become increasingly stringent with regard to accessibility, experts in the field still call for higher standards and greater attention to disabilities other than restricted mobility. Vision impairment, hearing impairment, sensory disorders, and many of the bodily changes associated with aging are neglected in the building code. With many architects designing to the bare minimum, many spaces in our cities remain difficult for people to inhabit. The design of an intergenerational community should include considerations of accessibility to the highest degree as well as universal design — making spaces easy to navigate, understand, and use, for the largest number of people. While older people and people with disabilities are most affected by a lack of universal design, young, able-bodied people are not immune to poorly designed spaces either. In March of 2018, tech giant Apple made headlines after three 911 calls were made within one month due to employees walking into the pristine glass walls of their new Cupertino campus.<sup>47</sup> This problem has existed for some time, with employees placing sticky notes on the walls to warn others of the glass — safety decals are notably missing from the clear glass — but have repeatedly been taken down for aesthetic purposes.

With greater imagination and innovation, accessibility and universal design can be incorporated more seamlessly into spaces designed for everyone. Accessibility ramps and glass decals can be treated as design features instead of burdensome requirements. Especially in the design of intergenerational housing, where residents of all ages and abilities should feel most comfortable and at ease, it is crucial to consider accessibility best practices at every stage and detail.



*Fig. 3.58 High contrast finishes*



*Fig. 3.59 Roll-in pool*



*Fig. 3.56 Apple campus glass*



*Fig. 3.57 Entrance ramp feature*



*Fig. 3.60 Glass decals*

### INCLUSIVE DESIGN

Inclusive design choices are generous: they are intended to provide benefit to the user and their experience of a space.

#### Storage Space



**Benefits:**

Children, older adults, pets, and people with disabilities all require substantial storage space for strollers, walkers, toys, and mobility devices.

#### Privacy Buffer Between Homes



**Benefits:**

Narrow alleys between detached houses provide acoustic and visual privacy between neighbouring units.

#### Large Back / Front Yards



**Benefits:**

Large back and front yards common to houses outside the downtown core provide play space for children and pets but are a challenge to maintain.

#### INCLUSIVE + EXCLUSIVE

Some design choices are meant to be inclusive, but are also exclusive to other groups, either intentionally or unintentionally.

#### Spacious



**Benefits:**

Larger floor area provides space for mobility areas for kids and pets to traverse and requires less effort.

#### Proximity to Schools



**Benefits:**

Close proximity to good schools is crucial to families with children, and are usually located in low-density residential neighbourhoods.

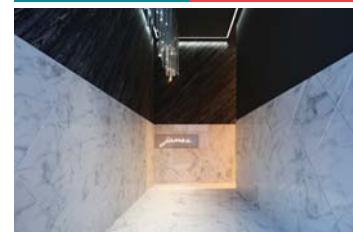
#### Daylighting and Views



**Benefits:**

Ample daylighting and views to the outdoors - especially to nature - vastly improve the quality of a space for all inhabitants and improves mood.

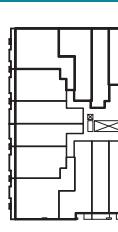
#### Polished Surfaces



**Benefits:**

Highly polished floors and walls are common in modern interior design but are slipping hazards for children, pets, and older adults at risk of falling.

#### High Density



**Benefits:**

Densely-packed floors in lower prices in proximity to transit and services make them attractive to homebuyers, but lack of sound privacy and light can be a concern.

#### Outdoor Lounging Space



**Benefits:**

Semi-private outdoor spaces like a front porch, back patio, or condo balcony expand the indoor-outdoor threshold to provide an amenity space.

#### Accessibility Features



**Benefits:**

Accessibility features like counter knee space and flush floor thresholds make everyday living more comfortable for those with certain disabilities.

#### Neighbourhood Walkability



**Benefits:**

Walkable neighbourhoods are coveted for their convenience and density but can also be noisy, cramped, and dangerous.

#### Muted



**Benefits:**

Muted colours and geometric shapes are common in modern interior design but can be overwhelming for people with mental or visual impairments.

Fig. 3.61 Inclusive and exclusive design tactics in residential design

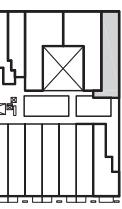
**EXCLUSIVE DESIGN**

Inclusive to certain groups, but ultimately either intentionally or as a by-product.

**Interiors****Compact Interiors**

**Benefits:** 🚙 🚴‍♂️ 🐾 🚹  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Provides maneuvering devices and play areas for children, pets, but are harder to clean and require more upkeep.

**Floor Plans**

Good floor plans results in prime locations for amenities. Drawbacks include lack of privacy between units.

**Interiors****Amenities for Adults**

**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Modern and eye-catching interior design can be confusing for those with disabilities.

**EXCLUSIVE DESIGN**

Exclusive design choices either ignore certain groups or intentionally manipulate and control behaviours deemed undesirable.

**Excessive Stairs**

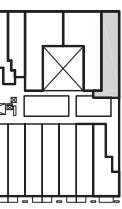
**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Despite their simplicity, efficiency, and low cost, stairs are an obstacle to people with mobility impairment, children, and smaller pets.

**Gated Communities**

**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Affluent and exclusive neighbourhoods use gates and signs to keep undesirable people out of their community.

**Floor Plans****Unit Isolation**

**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

High-density residential units are isolated from one another as much as possible, but breeds loneliness.

**Rules and By-Laws****APPEARANCE**

- (a) No awnings, shades or reflected coatings shall be erected over the outside or inside windows without the prior written consent of the Board of Directors. The Board Directors shall have the right, in its absolute discretion, to prescribe, to prescribe the shape, colour and material of the awning or shades to be erected. ALL SHADES OR OTHER WINDOW COVERINGS SHALL BE OF A WHITE COLOR EXTERIOR FACE AND ALL DRAPERY SHALL BE LINED IN OFF-WHITE TO PRESENT A UNIFORM APPEARANCE TO THE EXTERIOR OF THE BUILDING. THIS SHALL BE STRICTLY ENFORCED.

- (b) No sign, advertisement or notices shall be inscribed, painted, affixed or placed on any part of the inside or outside of the building or common elements, whatsoever, without the prior written consent of the Board of Directors.

- (c) No clothesline, antenna, aerial, tower or satellite dish or other similar structure shall be erected on or fastened to any part of the common elements, exclusive or otherwise, to any Unit.

**Narrow, Utilitarian Corridors**

**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Children, older adults, pets, and people with disabilities all require substantial storage space for strollers, walkers, toys, and mobility devices.

**Interiors**

Amenities in new condos are targeted at young urban professionals including bars, gyms, and jacuzzis, while often neglecting older adults and children.

**Sparse Lobbies**

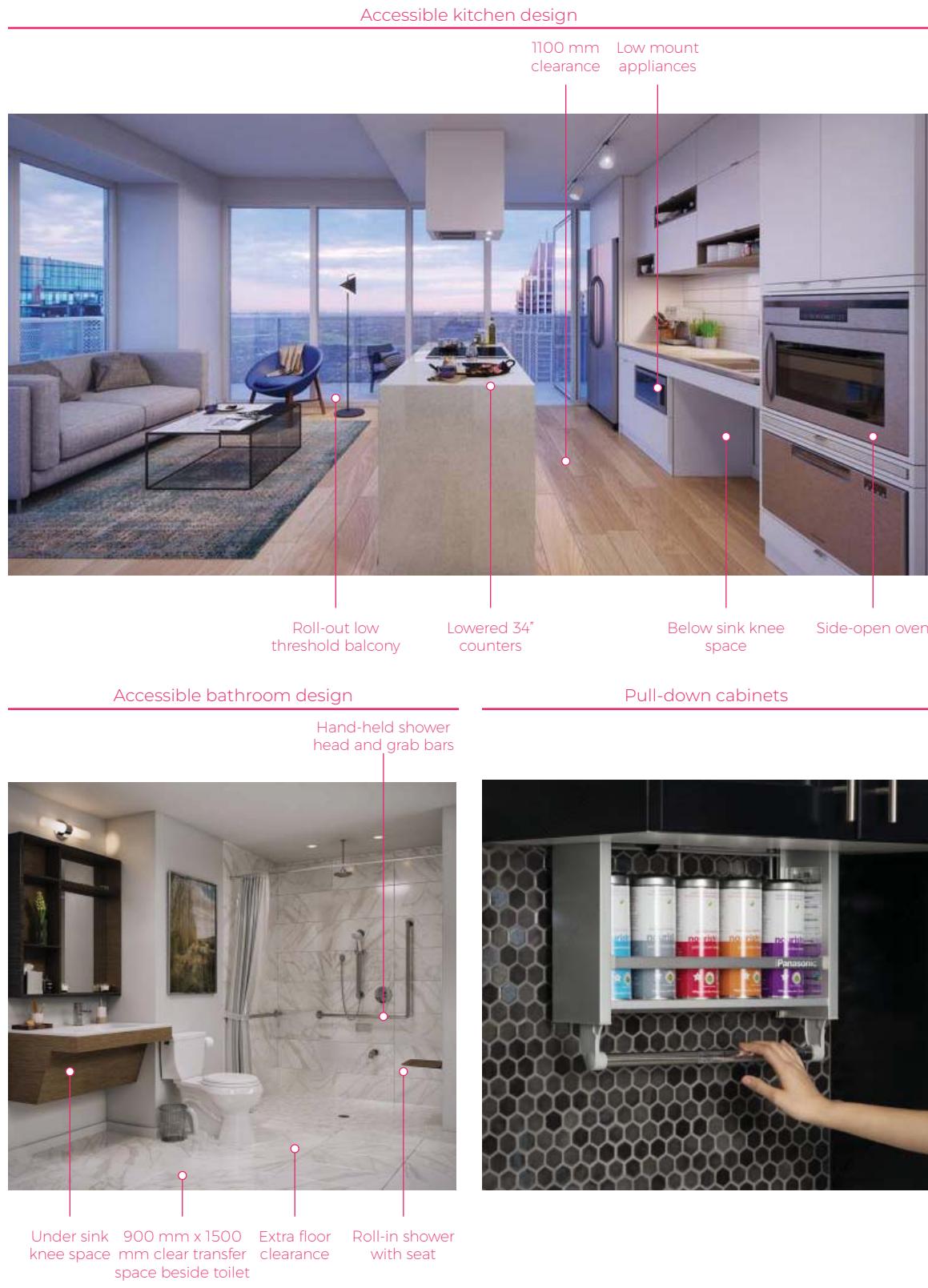
**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Sparingly-furnished lobbies prevent extended group loitering by residents and visitors, discouraging engagement with ground floor urban life.

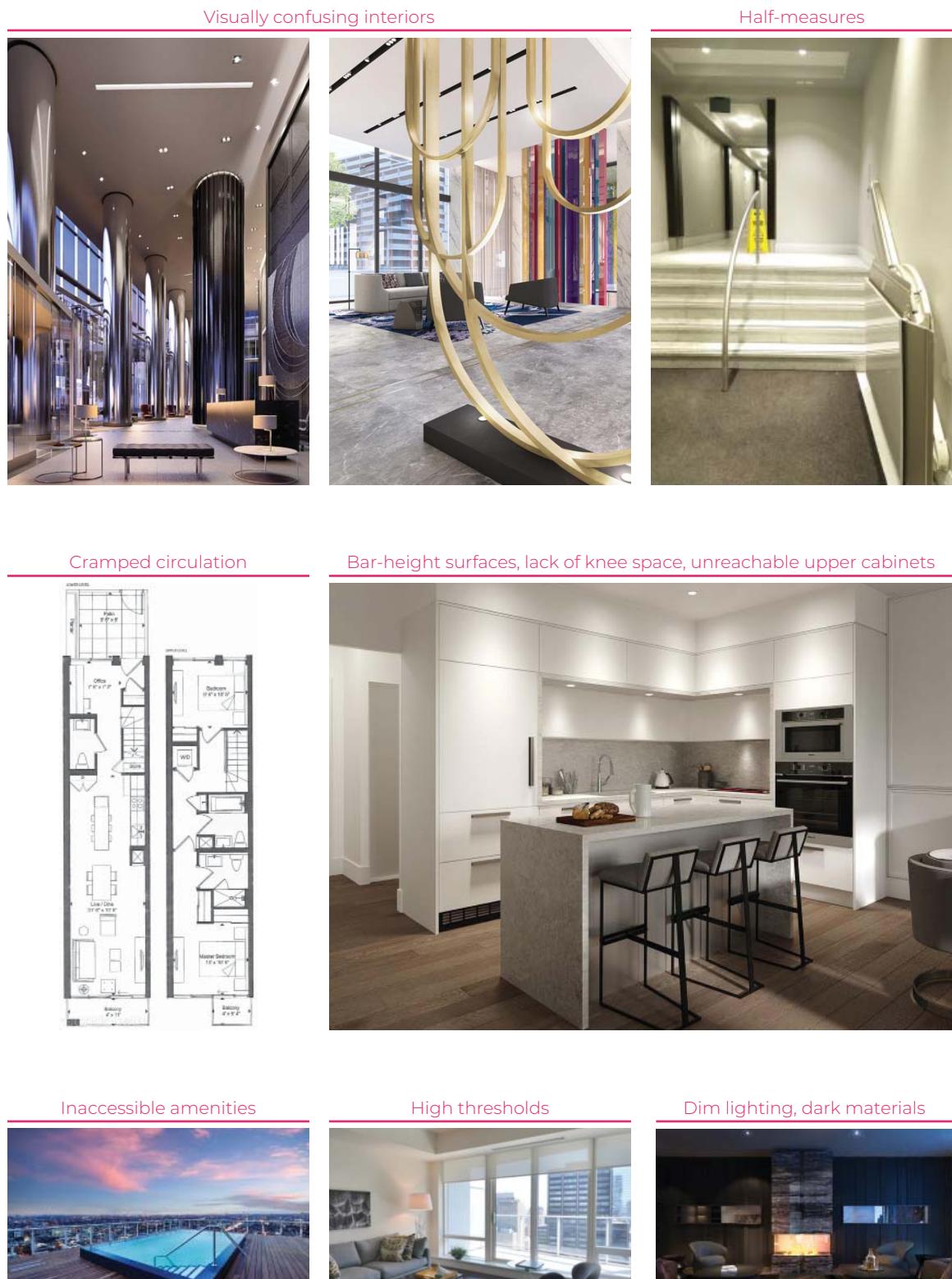
**Excessive Stairs**

**Benefits:** 🚙 🚴‍♂️ 🐾 🚶  
**Neglects:** 😞 🚵‍♀️ 🚶 🐾 🚹

Separate entrances for affordable housing, or "poor doors". Segregate residents based on socio-economic status to maintain exclusivity.



*Fig. 3.62 Accessibility features in condo design*



*Fig. 3.63 Inaccessible features common in condo design*

*Communal Kitchen and Dining Room*

Food and drink can act as a common denominator across people of different ages and cultures. The unique power inherent in the ritual of sharing a meal can foster relationships and bring a community together. This desire to create personal connections over food is the common impetus behind the creation of communal dining groups, but the structure, setting, and tone of these groups varies widely.

In recent years, many underground supper clubs have emerged in various neighbourhoods in downtown Toronto. This form of communal dining is usually casual but trendy, often featuring the work of amateur or semi-professional chefs in an intimate setting. Seatings are small, usually the size of a large dinner party, and almost always require advance registration — or, in the case of Toronto's L.U.S.T, a secret address given only to those approved to participate in any given week. The primary objectives of these supper clubs is to showcase a chef and their food, and to meet new people. Their popularity can perhaps be attributed to the growing trend of people living alone or in couples, rather than with large families, who may wish to share a meal with a larger group in a social setting.

Community meals have also become more popular. Focusing less on the food itself and more on the community-building and hunger aspects of communal dining, community meals are usually grassroots movements initiated by members of the community to bring together people of different cultures and backgrounds and feed them at a reasonable price (if any). Initiatives run by groups like The Stop aim to address community hunger through casual meals prepared by volunteers, served in a cafeteria-like setting. Groups hoping to coordinate these kinds of community meals without a dedicated space can now rent kitchen space as well, giving people use of commercial-grade appliances and equipment by the hour when necessary.

Condo developers have begun to incorporate private kitchens and dining rooms in their amenity floors, though less as a response to the desire to share connections over food and more as a way to compensate for shrinking kitchens and dining rooms in newer condo units. They provide a place for condo owners to host large dinner parties outside the confines of their compact units.

Successful intergenerational housing should include a large communal kitchen and dining room as a place for people of all ages to share skills and enjoy meals together. Older adults with more experience in the kitchen can teach younger residents to cook, showcasing different cuisines; young adults not wishing to cook or eat alone can enjoy a meal with their neighbours;



*Fig. 3.64* Luke's Underground Supper Table (L.U.S.T), a secret supper club in Toronto



*Fig. 3.67* The Depanneur supper club in Toronto

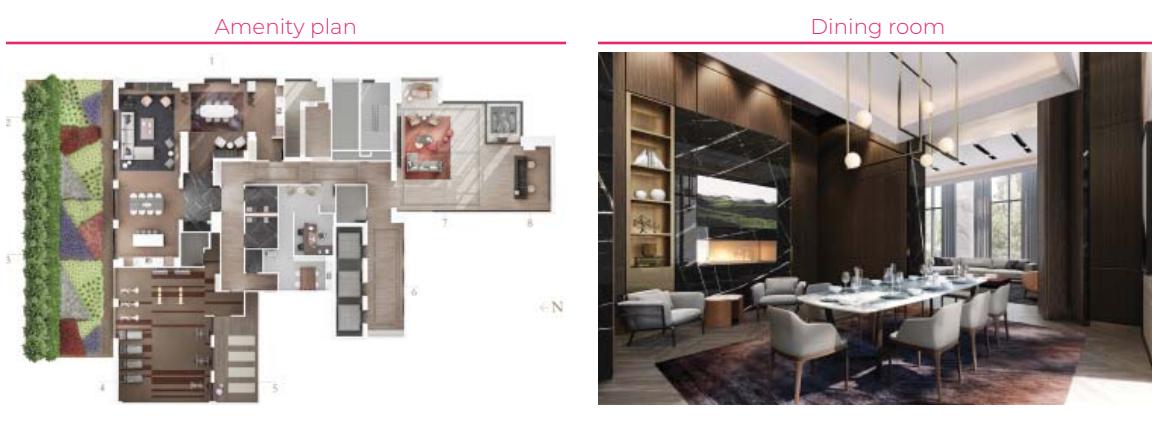


*Fig. 3.65* Kitchen24 Food Incubator

*Fig. 3.66* Community meals at the Stop



*Fig. 3.68 Dining and kitchen amenities at the Yorkville Park condo in Toronto*



*Fig. 3.69 Dining and kitchen amenities at the Bianca condo in Toronto*



*Fig. 3.70 Empire condo dining room and bar*

*Fig. 3.71 Dining room and bar at Chaz Yorkville*

older adults who wish to age in place but cannot easily cook for themselves can easily be fed and remain a part of the community without needing to leave their building. Especially in conjunction with flexible units with removable kitchens, the communal kitchen and dining rooms will be very important.

#### *Intergenerational Spaces and Programming*

Beyond social and dining spaces, an intergenerational community should also include spaces designed specifically for activities that bring together people of all ages. As previously noted, many spaces are either explicitly or implicitly designed to be age-segregated, making intergenerational exchange difficult. Danish design firm arki\_lab teamed up with Australian architecture firm TERROIR, Deane Simpson, and the Danish Ministry of Immigration, Integration, and Housing to study this age divide as it manifests in urban public spaces. They shared their findings in a small publication entitled *A Short Guide to How to Design Intergenerational Urban Spaces*, in which they share their research about how urban spaces tend to keep people within their peer group and make other age groups seem “alien and unapproachable”<sup>48</sup>. Things as simple as building a few more benches in public areas for older people to rest or creating adjacencies between age-homogeneous spaces can greatly increase intergenerational exchange. Occasionally inviting people of other ages into age-homogeneous spaces for special activities can also encourage greater mutual understanding and connection in smaller, manageable doses.

Some institutions have chosen to take an immersive approach, housing nursing homes and day care centres in close proximity within the same building. Hesston Community Child Care in Kansas was specifically designed to be intergenerational, with individual child care and elder care centres built according to their required specifications, but with abundant intergenerational space between them for daily group activities. An observation gallery space facing the children’s area allows elderly residents to watch the children play from a distance, without having to participate in formally planned events.

Spaces for young-old adults to engage with their community could include a cafe or restaurant staffed primarily by retirees, as one Staten Island restaurant has done. A rotating staff of *nonnas* or grandmothers bring their culture and cuisine to diners, working beyond traditional retirement age to continue to be breadwinners into their twilight years. By working in a visible environment, these older adults are able to engage with diners of all ages and carve out a role for themselves in society even as they age.

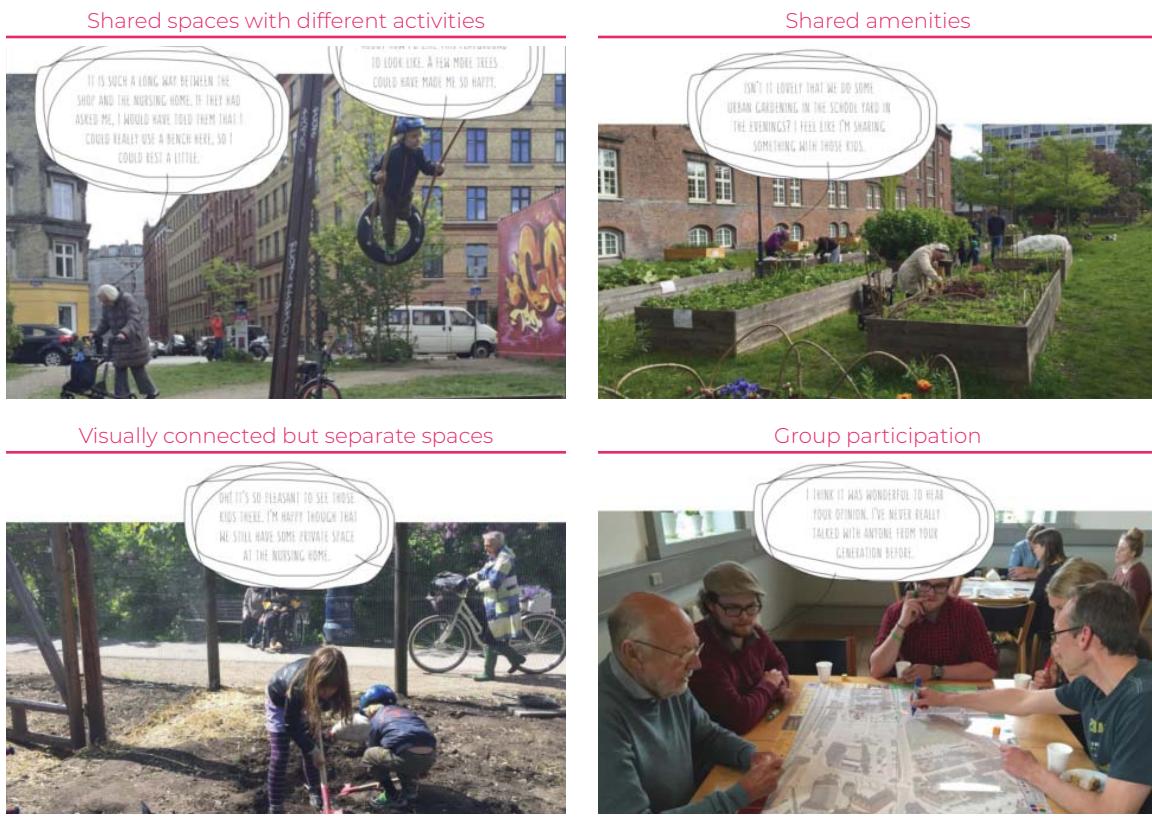


Fig. 3.72 Excerpts from arki\_lab's guide on intergenerational urban space

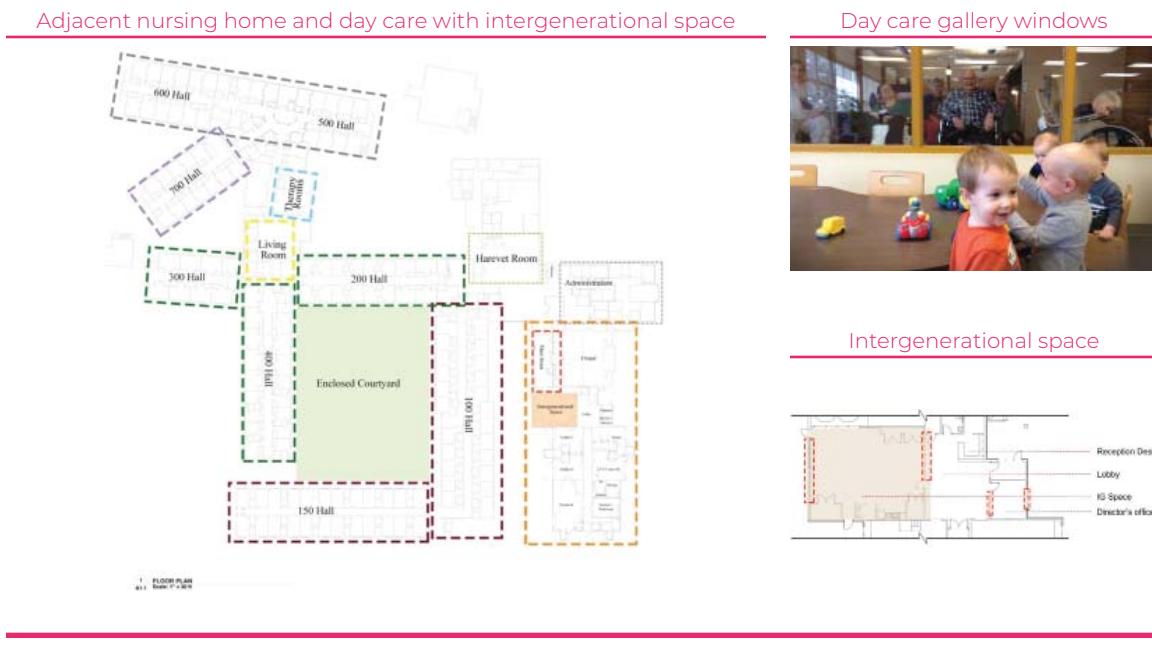
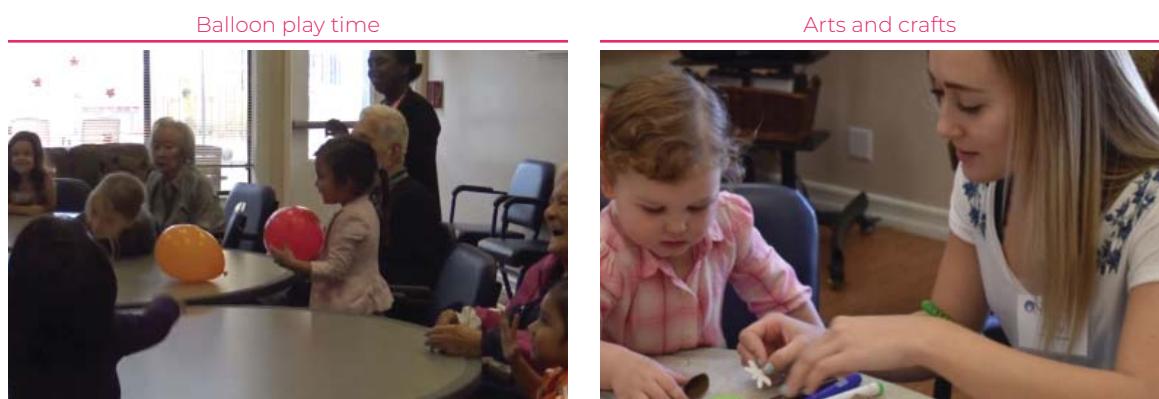


Fig. 3.73 Hesston Community Child Care in Kansas



*Fig. 3.74* Enoteca Maria, restaurant staffed by a rotating roster of older women from a variety of cultural backgrounds



*Fig. 3.75* Intergenerational activities at ONEgeneration Adult Daycare and Childcare in California



*Fig. 3.76* Intergenerational room at Generations Crossing, Virginia

*Outdoor Green Space*

Outdoor spaces, including landscaped areas, provide amenity to people of all ages and can act as gathering space, play area, or simply a beautiful, therapeutic space to view and occupy. A complete intergenerational space should provide spaces with a variety of intended uses at a range of scales so as to give residents the freedom to choose their level of engagement with their neighbours at any given time.

Vegetable and herb gardens are especially appropriate for an intergenerational community as it brings people of all ages together to engage in a productive activity that encourages the exchange of knowledge and skills. Many older adults enjoy gardening and possess the skills to grow a successful garden, but may no longer be physically able to execute the tasks required. Conversely, children and young adults can perform many physically-strenuous tasks, and learning to garden can be a valuable skill to acquire. Growing a fruitful garden can also help the community to become more self-sufficient, as harvests can be used in communal meals. Highly successful community gardens are run by the Stop in Toronto, run by volunteers, creating opportunities for community volunteering while generating proceeds for their other initiatives by selling their crops at farmer's markets. To accommodate wheelchair users, some plots should be placed at an accessible height, as in the garden at Fauquier Health Rehabilitation and Nursing Center in Virginia.

Gardens can also be therapeutic and used to soothe and comfort people of all ages, but especially people of older age. The dementia garden at the Park View Care Home in Ipswich, UK is landscaped with specific fragrant plantings to invoke nostalgia and help dementia patients conjure memories. Visually, greenery is both attractive and calming, and can be drawn into interior spaces through adequate daylight and minimal mullions, such as in the Michael Van Valkenburgh-designed courtyards at Elie Tahari's offices in New Jersey. They should include ample seating, both fixed and moveable, to encourage extended use — this is done to great effect in Manhattan's Paley Park and Zuccotti Park, two highly popular public spaces.

Some open outdoor space should also be dedicated to children's play, but must be designed with adjacencies and accessibility in mind. Where possible, this could include an accessibly-designed water feature, like Chicago's Crown Fountain — a popular place for children to play in the warmer months while older adults watch on from the sides. More traditional playground areas should also be designed accessibly, giving focus to ground treatments over play structures, encouraging children of all levels of ability to play together.



*Fig. 3.77* Vegetable plots at The Stop's Green Barn in Toronto



*Fig. 3.80* Wheelchair-accessible garden at Fauquier Health Rehabilitation and Nursing Center, Virginia



*Fig. 3.79* Courtyard at Elie Tahari offices, New Jersey



Fig. 3.84 Paley Park, New York City



Fig. 3.87 Zuccotti Park, New York City



Fig. 3.85 Children playing in Crown Fountain, Chicago



Fig. 3.86 Various playgrounds designed by NIPPaysage in Quebec



### *Revenue-generating Spaces*

As a result of the abundant amenity spaces required to make a successful intergenerational community, and to maintain some level of affordability, funding of the construction of such a place will be a challenge. While government funding and donations will make such a project more feasible, the project should integrate revenue-generating spaces that can help the community become more self-sufficient. With the rise of the sharing economy, rentable spaces and communal amenities are becoming more in demand. Co-working spaces like WeWork have locations in many large cities including multiple locations in Toronto, accommodating freelancers, start-up businesses, and people working remotely. By creating a co-working space in an intergenerational community, revenue can be created to contribute to the costs of maintaining the building while bringing a vibrant, youthful energy to the space.

A cafe or restaurant open to the public can also bring revenue to the building, especially if staffed by volunteer residents or people from the greater neighbourhood community. One cafe in Singapore is staffed by senior volunteers while diners choose what they pay. This model achieves a number of objectives: it brings visibility to older adults in society, gives retired citizens a place of employ, provides a social space to the community prevents seniors isolation, and generates some revenue for the upkeep of the building.

A child care space can generate significant revenue while encouraging intergenerational exchange. If open to both residents and the general public, a day care centre could provide convenient amenity to residents and the community at large. A mix of paid, certified staff and carefully vetted volunteers could create employment opportunities for the community. This allows the day care to be provided at lower than market rate, in a city where day care is in sorely short supply.

Given the abundance and diversity of amenity spaces designed for the community, some of these spaces could be rented out as modest event spaces to the general public at scheduled times that are amenable to the residents. Spaces like gardens, communal dining room and kitchen, and lounge spaces can be under-used at certain times of the day or during certain times of the year. Larger rooms, such as a room designed for town hall meetings, can be rented out for *tai chi* or yoga classes.

Many of these spaces require some sort of staffing or maintenance, as will the building itself. Some of these roles can be fulfilled by residents on a sign-up, volunteer basis, in a way that can offset their own monthly maintenance fees while contributing to the community.

Workspace



Pricing plan

---

**Membership Options**

Short-term agreements keep things flexible.



**Custom Buildout**

Pricing Varies

Whether full floor or building, we'll partner with you to design, build, and manage a tailor-made layout.

**Best for:**

- Companies of 50-500+
- Unique functionalities
- Flexible move-in date

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Starting at C\$520/month

Enclosed, lockable offices can accommodate teams of any size. Move-in ready, with desks, chairs, and filing cabinets.

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- Satellite and established teams
- Autonomy within community

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**Dedicated Desk**

Starting at C\$350/month

A desk of your own in a shared space at one location. You'll set up shop in the same spot each day in your building.

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- Collaboration and growth
- Everyday use

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**Hot Desk**

Starting at C\$275/month

Guaranteed workspace in a common area at one location. Just bring your laptop, pick an open seat, and get to work.

**Best for:**

- Remote and part-time workers
- Client meetings
- More than a week per month

[Learn More](#)

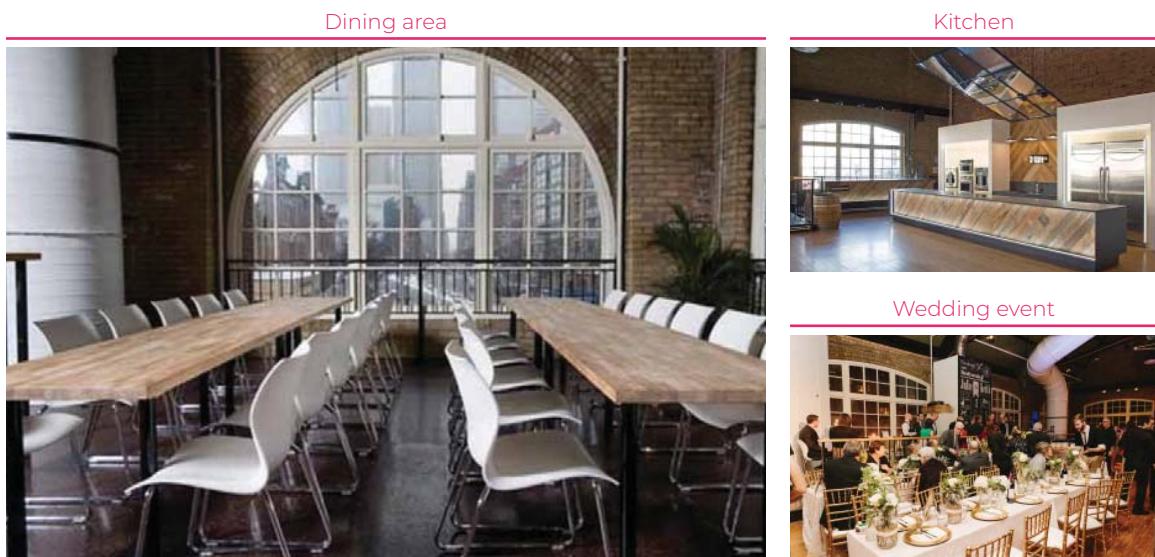
Fig. 3.88 WeWork Toronto, Richmond Street location



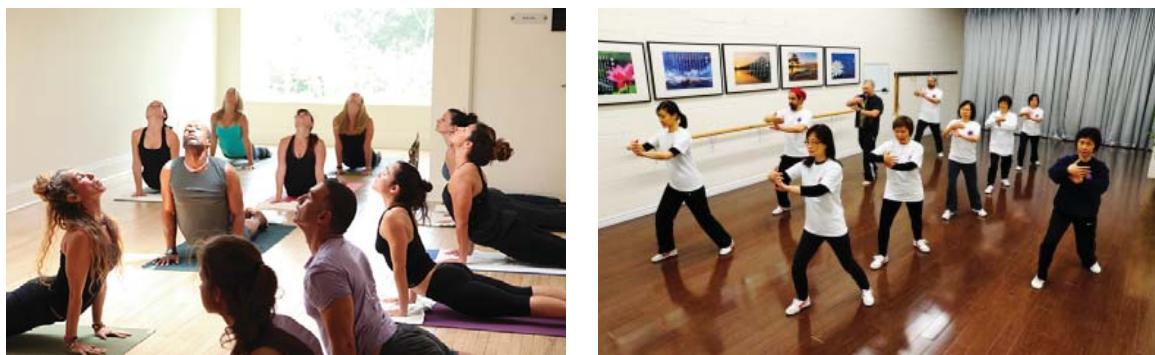
Fig. 3.89 Volunteer cafe in Bukit Batok, Singapore



*Fig. 3.90* Baldwin Pre-School Centre in Aurora, Ontario



*Fig. 3.91* Market Kitchen event space above St. Lawrence Market, Toronto



*Fig. 3.92* 889 Yoga, Toronto

*Fig. 3.93* Ji Hong Tai Chi, Mississauga

*Endnotes*

01. E. C. Hedberg, *The Social Production of Intergenerational Exchange: The Value of Social Capital*, University of Chicago, University of Chicago Social Science Administration, October 28, 2004, accessed October 10, 2017, <https://ssa.uchicago.edu/sites/default/files/uploads/10282004.pdf>
02. Rita Beamish and Susan Wolfe, eds., *Hidden In Plain Sight: How Intergenerational Relationships Can Transform Our Future*, report, Center on Longevity, Stanford University (Stanford, 2016), 8.
03. Ibid, 13.
04. Ibid, 13.
05. Ibid, 15.
06. Ibid, 22.
07. <https://www.thestar.com/news/gta/2016/12/12/daycare-fees-in-toronto-jump-15-per-cent-in-two-years-survey-finds.html>
08. <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/famil107a-eng.htm>
09. Generations United, Our Mission, accessed November 27, 2017, <http://www.gu.org/ABOUTUS/OurMission.aspx>.
10. Generations United, Our Work, accessed November 27, 2017, <http://www.gu.org/OURWORK.aspx>
11. Tom Bethell, *Family Matters: Multigenerational Families in a Volatile Economy*, report, Generations United, 2011, 12 , accessed November 27, 2017, <http://www.gu.org/RESOURCES/PublicationLibrary/FamilyMattersMultigenerationalFamilies.aspx>.
12. Generations United, Our Work.
13. Generations United, *In Loving Arms: The Protective Role of Grandparents and Other Relatives in Raising Children Exposed to Trauma*, report, Generations United, 2017, 3, accessed November 27, 2017, <http://www.gu.org/RESOURCES/PublicationLibrary/FamilyMattersMultigenerationalFamilies.aspx>.
14. Ibid, 9.
15. Ibid, 9.
16. Generations United, *Intergenerational Shared Site: Making the Case*, report, Generations United, 2006, 3, accessed November 27, 2017, <http://www.gu.org/RESOURCES/PublicationLibrary/FamilyMattersMultigenerationalFamilies.aspx>
17. Laurie Monsebraaten, “Magic abounds when daycare, seniors home share roof,” *The Toronto Star*, February 9, 2016, accessed November 30, 2017, <https://www.thestar.com/news/gta/2016/02/09/magic-abounds-when-daycare-seniors-home-share-roof.html>.
18. Ibid.
19. “Kipling Acres Long Term Care Home,” Montgomery Sisam Architects, November 13, 2011, accessed November 30, 2017, <http://www.montgomerysisam.com/projects/kipling-acres-long-term-care-home>.
20. Shannon E. Jarrott, *Tried and True: A Guide to Successful Intergenerational Activities and Shared Site Programs*, report, Generations United, 2007, 5, accessed November 27, 2017, <https://s3.amazonaws.com/pushbullet-uploads/ujzNDwQrsR2-lwTZVh9XzpO2KpViVzhCua55iDV0Dyg/tried%20and%20 true.pdf>
21. Generations United, *Creating An Age-Advantaged Community: A Toolkit for Building Intergenerational Communities that Recognize, Engage, and Support All Ages*, report, Generations United, 2007, 5, accessed November 27, 2017, <http://www.gu.org/LinkClick.aspx?fileticket=S5ph9QfDu7A%3d&tabid=157&mid=606>
22. Ibid, 26-75.

23. Monsebraaten, "Magic abounds".
24. Ibid.
25. Ibid.
26. Generations United, "Two Harbors, MN—2017 Best Intergenerational Communities Award Winner," *Medium* (web log), June 27, 2017, accessed November 1, 2017, <https://medium.com/@GensUnited/two-harbors-mn-2017-best-intergenerational-community-award-winner-bee2bcfb690e>.
27. Generations United, Public Policy, accessed November 27, 2017, <http://www.gu.org/OURWORK/PublicPolicy.aspx>
28. *Generations United's Public Policy Priorities for the 115th Congress*, report, Generations United, 2017, accessed November 5, 2017, <https://dl2.pushbulletusercontent.com/aZtUMuvqrfdD1dtMdqqdWKRGVPRXhus/GU%20115th%20PPA%20-%20-Final.pdf>.
29. "Collective House," Life in Kankanmori|Collective House Kankanmori(Tokyo), , accessed April 1, 2017, <http://www.collectivehouse.co.jp/en/kankanmori/life.html>.
30. Tiffany R. Jansen, "This Nursing Home Is Also a College Dorm," CityLab, February 13, 2017, accessed April 1, 2017, <https://www.citylab.com/equity/2015/10/the-nursing-home-thats-also-a-dorm/408424/>.
31. Tatjana Schneider and Jeremy Till, *Flexible Housing* (Oxford: Architectural Press, 2007), 4.
32. Ibid., 60.
33. Ibid., 62.
34. Harry Francis Mallgrave, *Modern Architectural Theory: A Historical Survey, 1673–1968* (Cambridge: Cambridge University Press, 2009), 371.
35. Ibid.
36. Ibid., 361.
37. Till, *Flexible Housing*, 76.
38. Rhona Richman Kenneally and Johanne Sloan, *Expo 67: Not Just a Souvenir* (Toronto: Univ. of Toronto Press, 2010), 195.
39. "Smart Amenities," Smart House Condos Toronto - Intriguing, Innovative, Smart living at Queen & University, accessed November 17, 2017, <http://smarthousetoronto.com/smartenities.html>.
40. "(W)ego Installation Open To The Public At Dutch Design Week 2017," *MVRDV News*, accessed November 17, 2017, <https://www.mvrdv.nl/en/news/w-ego-installation-opens-to-the-publictomorrow-at-dutch-design-week>.
41. Adele Weder, "For Everyone a Garden: The failed dream of Montreal's Habitat '67," *The Walrus*, January 12, 2008, accessed September 17, 2017, <https://thewalrus.ca/for-everyone-agarden/>.
42. Robin Levinson King, "What ever happened to the Toronto duplex?" *The Toronto Star*, February 9, 2016, accessed October 3, 2017, <https://www.thestar.com/business/2016/02/09/what-everhappened-to-the-toronto-duplex.html>.
43. Alexandra Sienkiewicz, "Here's how condo dwellers are getting creative, hacking their spaces and forcing innovation," *The Toronto Star*, May 26, 2017, accessed October 3, 2017, <http://www.cbc.ca/news/canada/toronto/condo-hacking-spaces-toronto-1.4131413>
44. Ibid.
45. Settler International, "Housing in Italy," accessed October 3, 2017, <http://www.settler-international.com/italy/housing.htm>
46. Michael Kimmelman, "The Urban Home Away From Home," *The New York Times*, January 28, 2014, accessed October 21, 2017, <https://www.nytimes.com/2014/01/29/arts/design/lessons-from-mcdonalds-clash-with-older-koreans.html>.
47. Hamza Shaban, "The Switch Employees Kept Crashing into the Glass Walls at Apple's New Headquarters. Here's What They Told 911," *The Washington Post*, March 5, 2018, , accessed March 10, 2018, [https://www.washingtonpost.com/news/the-switch/wp/2018/03/05/employees-kept-crashing-into-apples-new-headquarters-glass-walls-heres-what-they-told-911/?noredirect=on&utm\\_term=.adeb2f34c4aa](https://www.washingtonpost.com/news/the-switch/wp/2018/03/05/employees-kept-crashing-into-apples-new-headquarters-glass-walls-heres-what-they-told-911/?noredirect=on&utm_term=.adeb2f34c4aa).
48. arki\_lab, *A Short Guide to How to Design Intergenerational Urban Spaces*, Danish Ministry of Immigration, Integration and Housing, 2015.

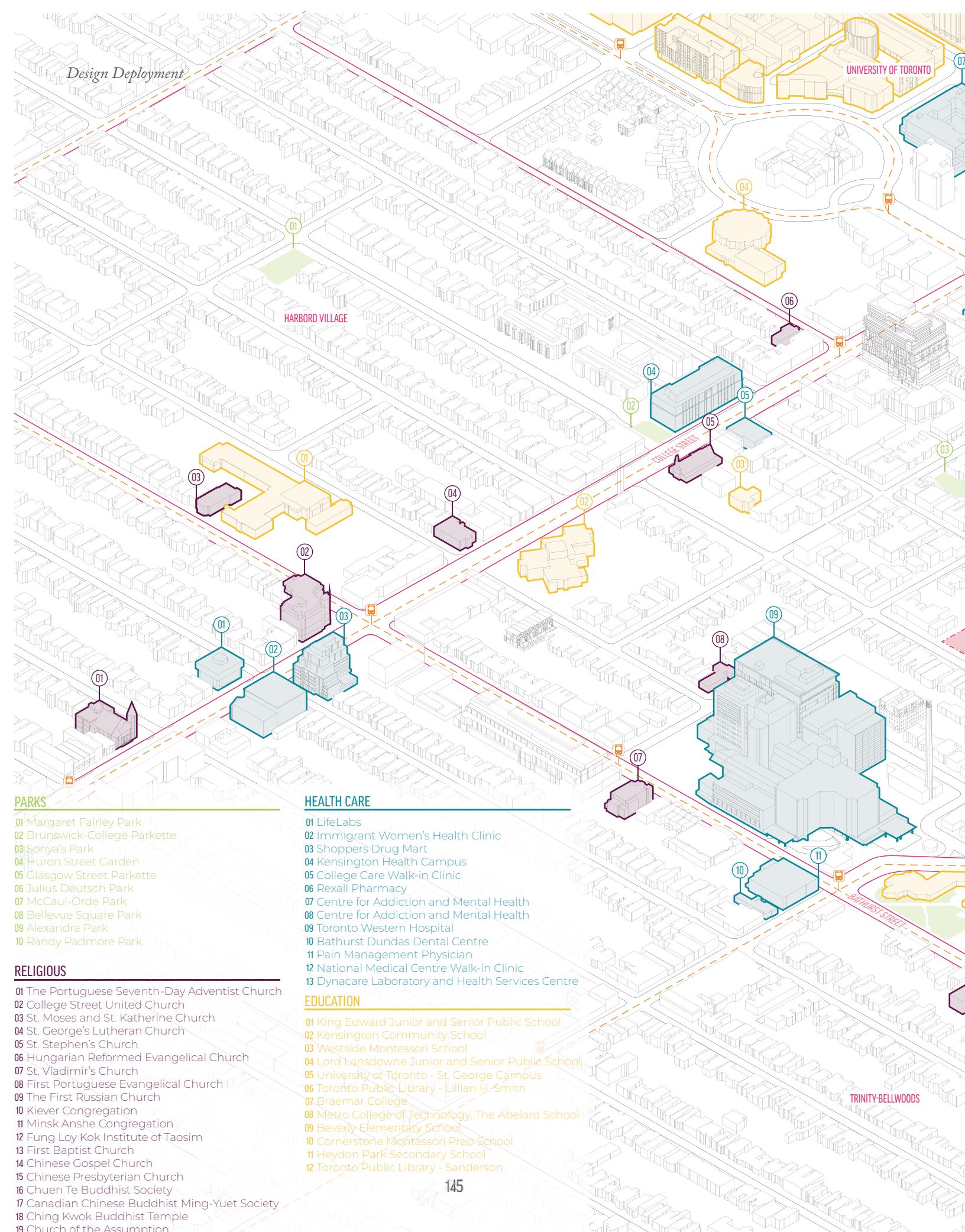


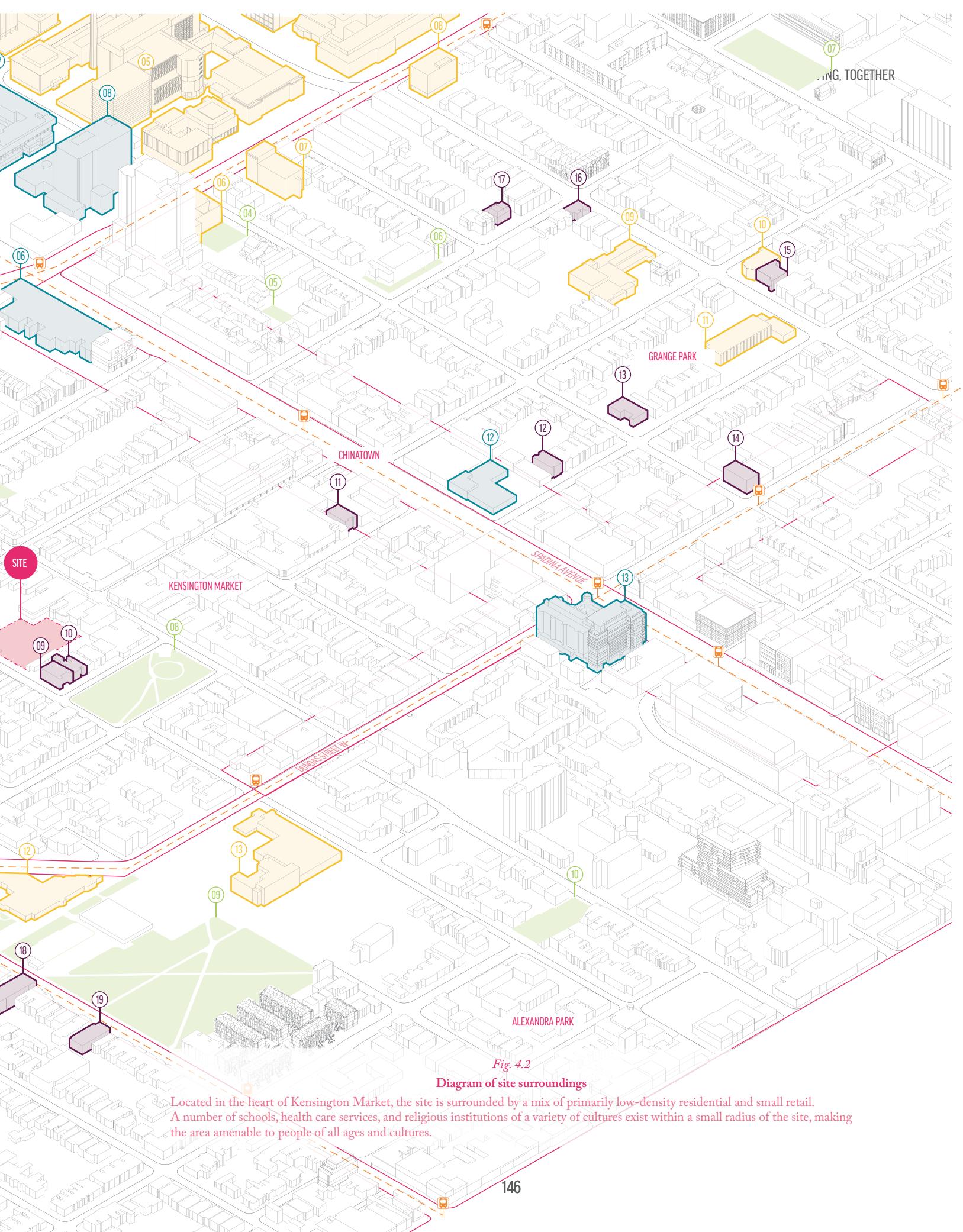
# DESIGN DEPLOYMENT



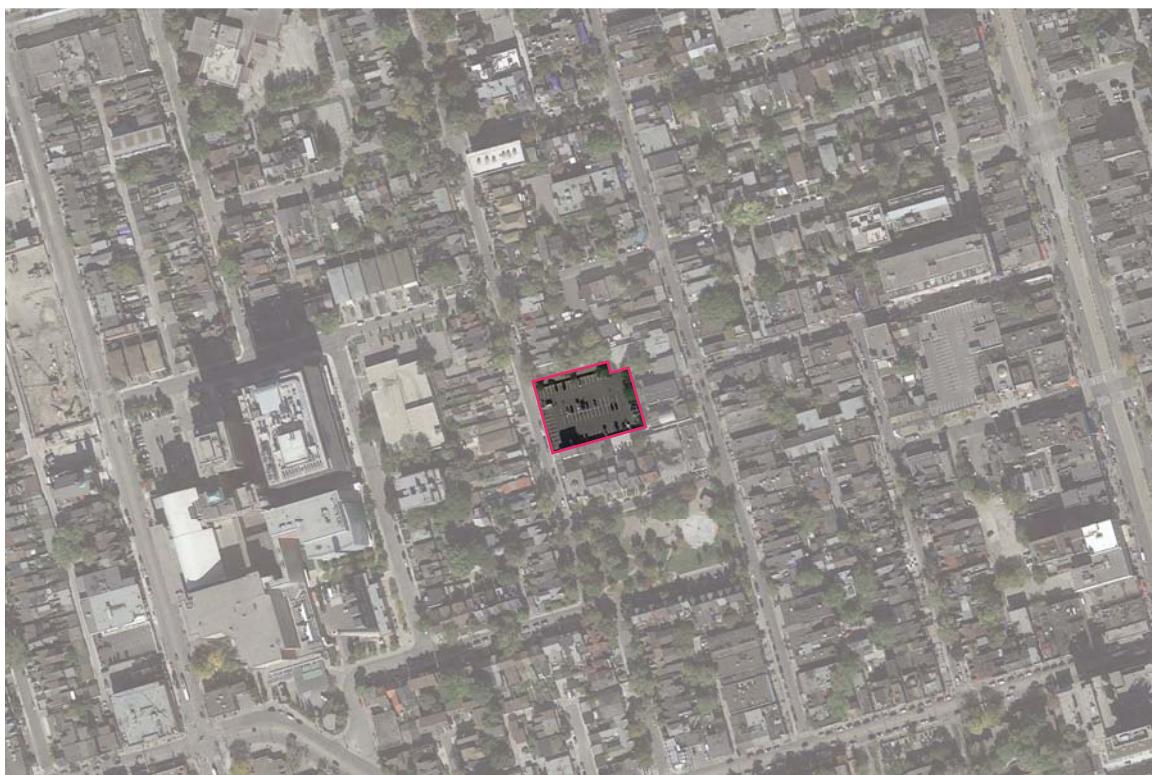


*Fig. 4.1*  
Exterior street view





Site aerial view



View of site looking north



View of site looking south

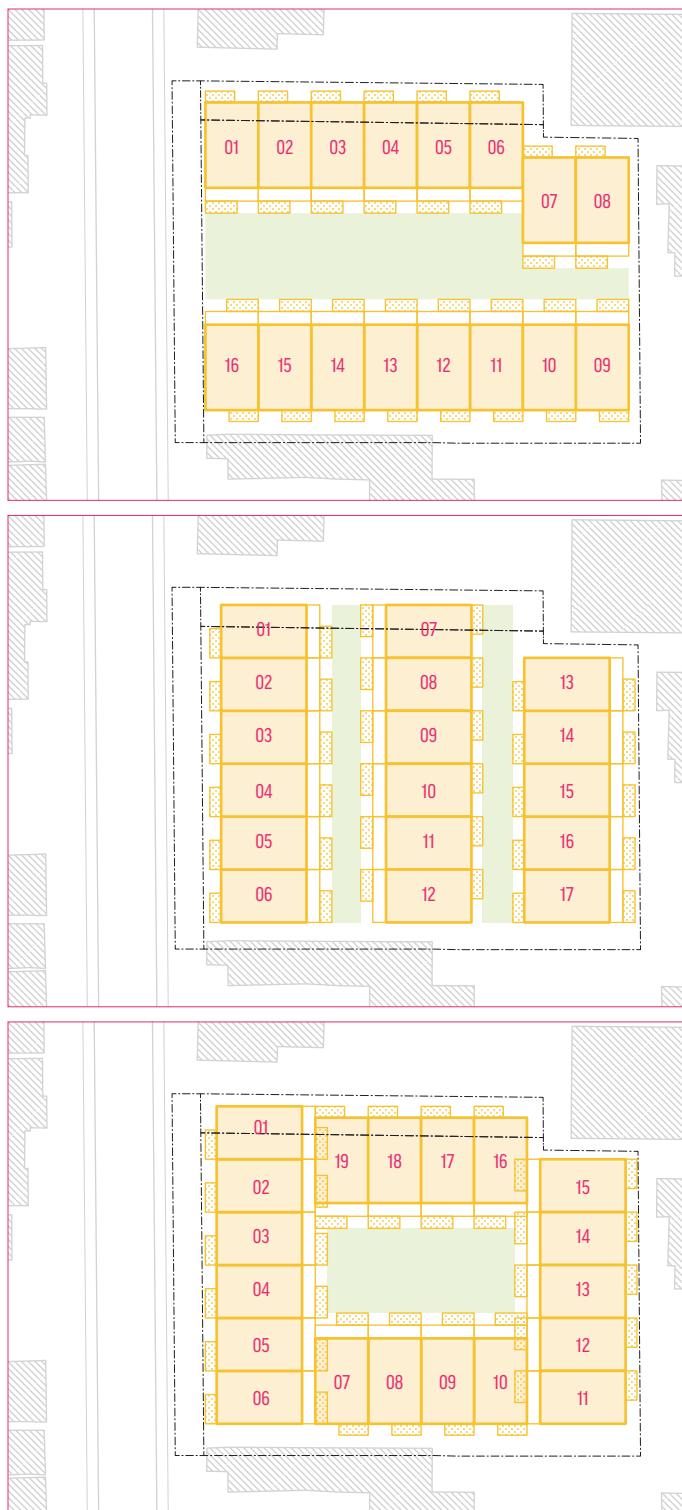


Site elevation



*Fig. 4.3 Site context*

Flanked by single-family detached houses on either side, the site is currently used as a city-owned Green P surface parking lot. While it does address a need in the area for off-street parking, especially in service of the surrounding businesses, it is a less than efficient use of space in a prime downtown location.



Aligning two rows of units to the long dimension of the site fits 16 units and creates a pleasant outdoor promenade condition in the centre, but creates a weak street facade and gives all units a north-south orientation.

Rotated 90°, one more unit can be fit into the site, but two long and narrow promenades are created in the interstitial space. Units have an east-west orientation and may experience poor light penetration if blocked by other units. Egress and circulation are also more difficult to lay out.

By laying out the units in a courtyard formation, the requisite linear nature of the single-loaded corridor is respected while creating a stronger street front, light penetration is improved, and a more generous communal outdoor space is achieved. Corner units may lose their courtyard-facing balconies, but can be compensated for by including other loitering and lounging spaces in the building.

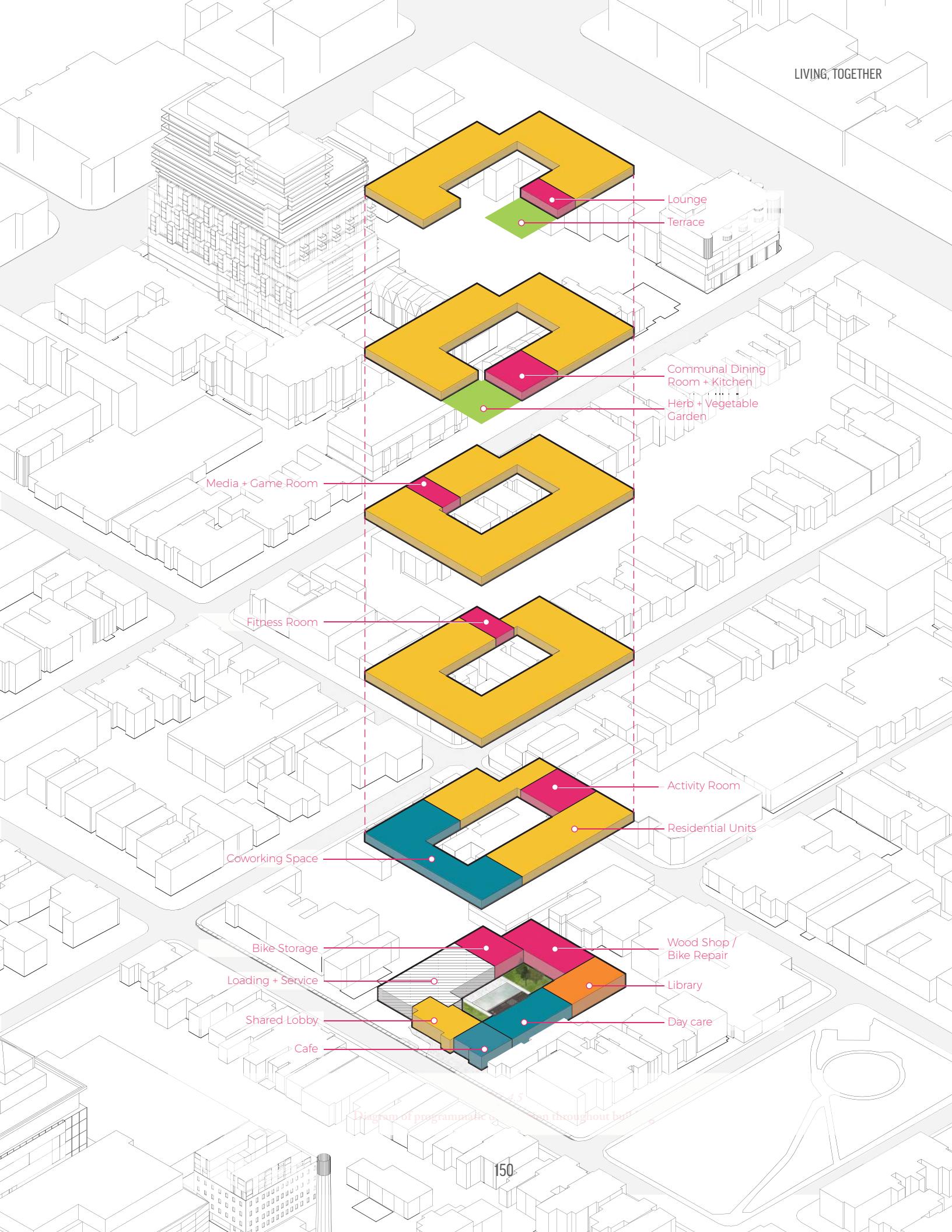
*Fig. 4.4 Possible unit arrangements within site boundary*

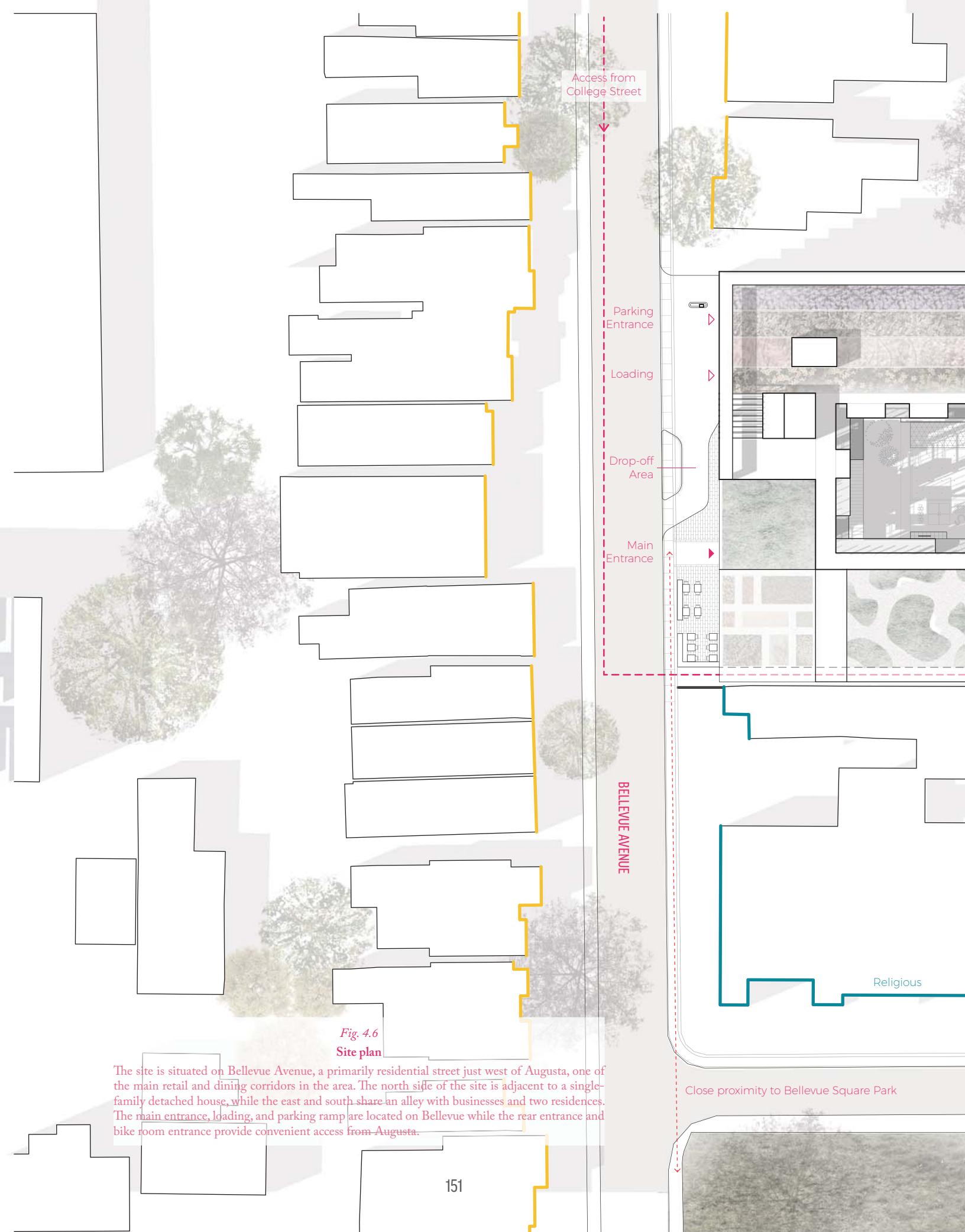
The massing of the building must be driven by the positioning of the units, as they are the key to the execution of this intergenerational housing community. Given the best-case flexible unit (Grade A) designed on a 7-metre grid with an outward-facing balcony, single-loaded corridor, and courtyard-facing balcony, the units must generally follow a linear configuration.

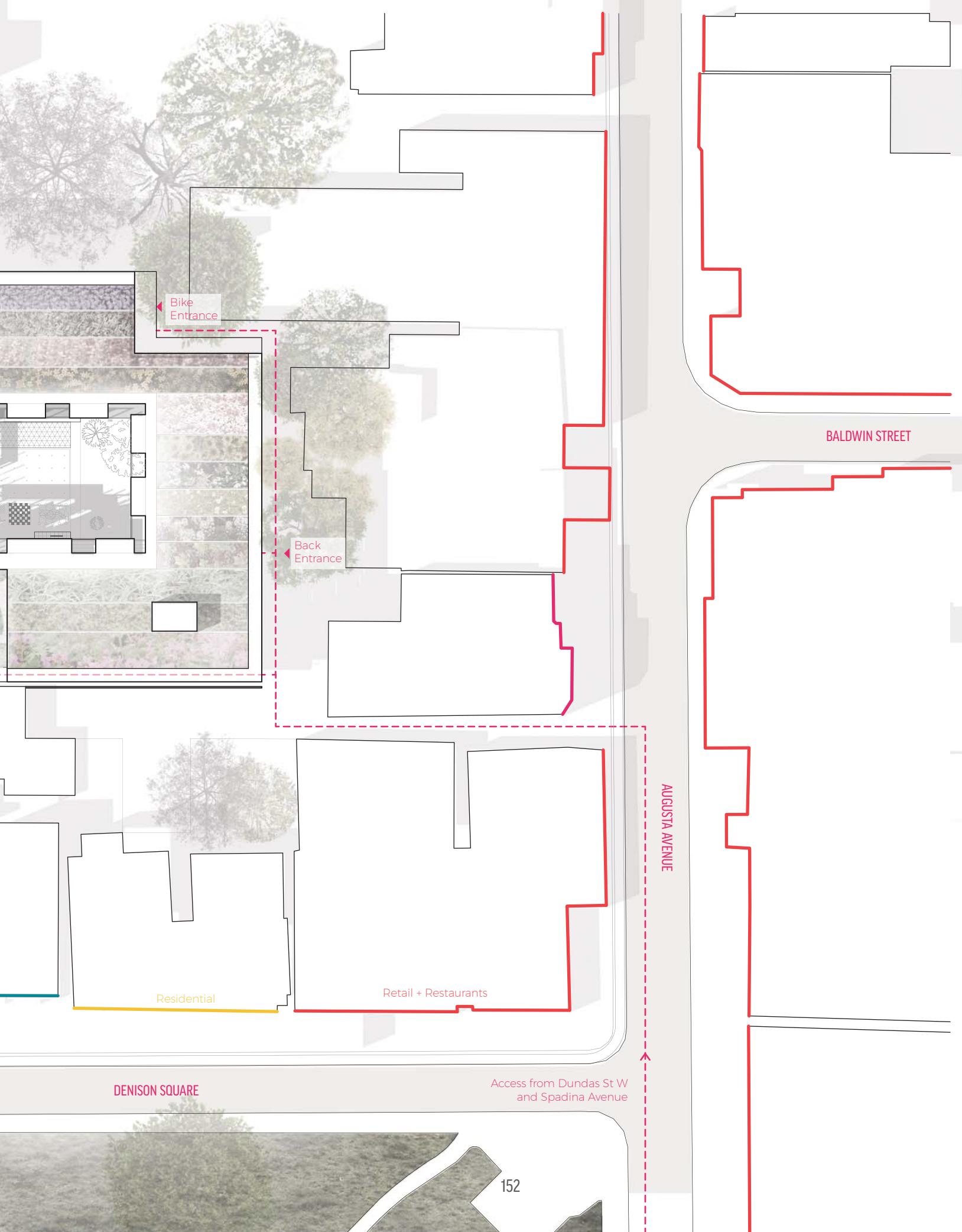
## DESIGN SUMMARY

Starting from a basic extruded courtyard building, amenity spaces and revenue-generating spaces are carved out from each level according to certain design objectives.

OBJECTIVES	SOLUTION
01: RESIDENTS' ASSOCIATION	An expansive activity room on the second floor facing the courtyard provides seating space for all-building town hall meetings. Enclosed conference rooms in the ground floor library provide meeting space for smaller meetings of the residents' association.
02: FLEXIBLE UNITS	All units are designed with flexibility in mind, using the Grade A flexible unit. The ring-shaped arrangement of units allows for a wide range of unit combinations to meet the diverse needs of Toronto's household types.
03: PUBLIC-PRIVATE BUFFER SPACE	Each unit interfaces the corridor with a small "front porch", acting as a semi-private buffer between the unit and the corridor as well as an extension of the living space through a full-height fold-up door. On the exterior side of the corridor, facing the front porch, each unit has its own balcony overlooking the courtyard below, further extending the ownership of each unit into the public realm to create a street-like experience.
04: EASILY ACCESSIBLE SOCIAL SPACE	Social and amenity spaces are provided on each floor so that all residents are within reach of a communal space, regardless of physical ability. Lookouts with Juliet balconies are interspersed throughout the building with casual seating to further encourage loitering and chance encounters in the "street".
05: ACCESSIBLE AND UNIVERSAL DESIGN	100% of units are barrier-free by default, rather than the required 15%. Extra space in bathrooms and living areas where barrier-free is not required can be filled with additional furnishings where desired.
06: COMMUNAL KITCHEN AND DINING AREA	A communal dining room with adjoining kitchen is provided on the fifth floor, which opens on to a vegetable and herb garden to the west. Community-prepared meals are made and consumed here.
07: INTERGENERATIONAL SPACE AND PROGRAMMING	The street-facing lobby and cafe provide an open, casual lounge area with abundant furniture for people of all ages to mingle and people-watch. The cafe is staffed by residents of the building and other community members, with an open kitchen through which they can be observed working. The courtyard includes a play area, fountain, game area, and grassy lawns to provide an intergenerational amenity space. A daycare is separated from the courtyard with low-reflection glass so that older adults can watch the children play. Community activities like tai chi, yoga, cooking classes, and clubs can take place in the many spaces of varying sizes and noise levels/privacy.
08: REVENUE-GENERATING SPACES	A community-run cafe on the ground floor generates revenue for the building and gives residents an opportunity to offset their maintenance fees. A co-working space on the second floor brings young professionals into the community while generating revenue for the building. Multiple amenity spaces within the building can be rented out as event spaces at select times to bring in more revenue.
09: OUTDOOR GREEN SPACE	Grassy areas dotted by trees in the courtyard provide a safe, active, park-like environment for residents to enjoy, which is also open to the greater neighbourhood community during business hours. The herb and vegetable garden on the fifth floor is available to walk through. A sixth floor zen garden is a quieter respite from the rest of the building.







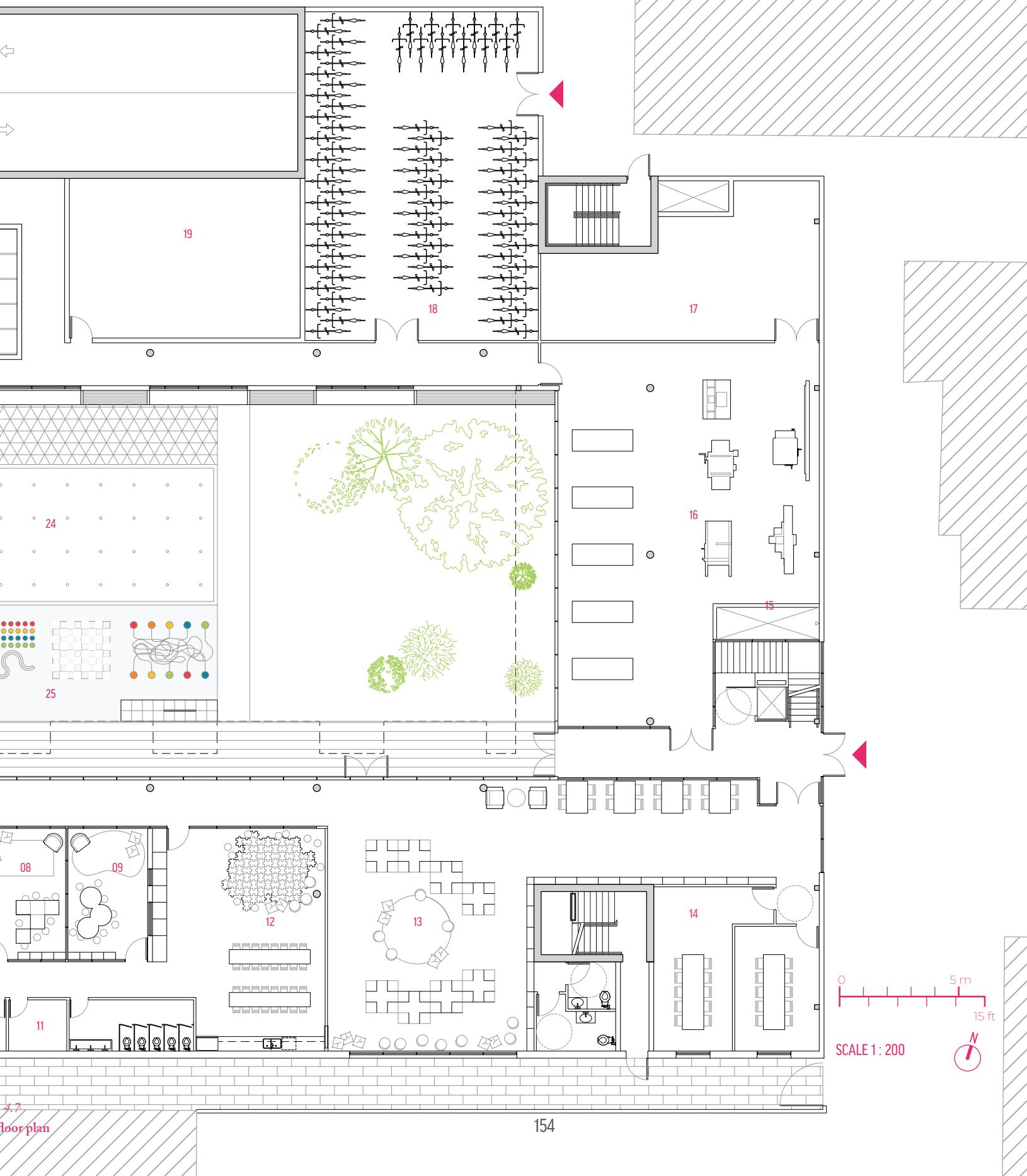
## Design Deployment

The ground floor is comprised of a street-facing lobby, a cafe with patio seating, a daycare space with connected library, a workshop, bike storage, and service spaces, oriented toward the central courtyard. The building's street frontage is dominated by the main lobby area and cafe, which acts as an informal gathering space for residents and the larger community alike. The cafe is served by a kitchen to the south. Access to the loading area and underground parking garage are also provided to the north. An off-street passenger drop-off/pick-up zone is provided directly in front of the lobby, in full view of the seating area inside, to facilitate safe and convenient transportation to residents for improved connectivity to their neighbourhood. The lobby is glazed on two sides, providing views to both the street and the courtyard.

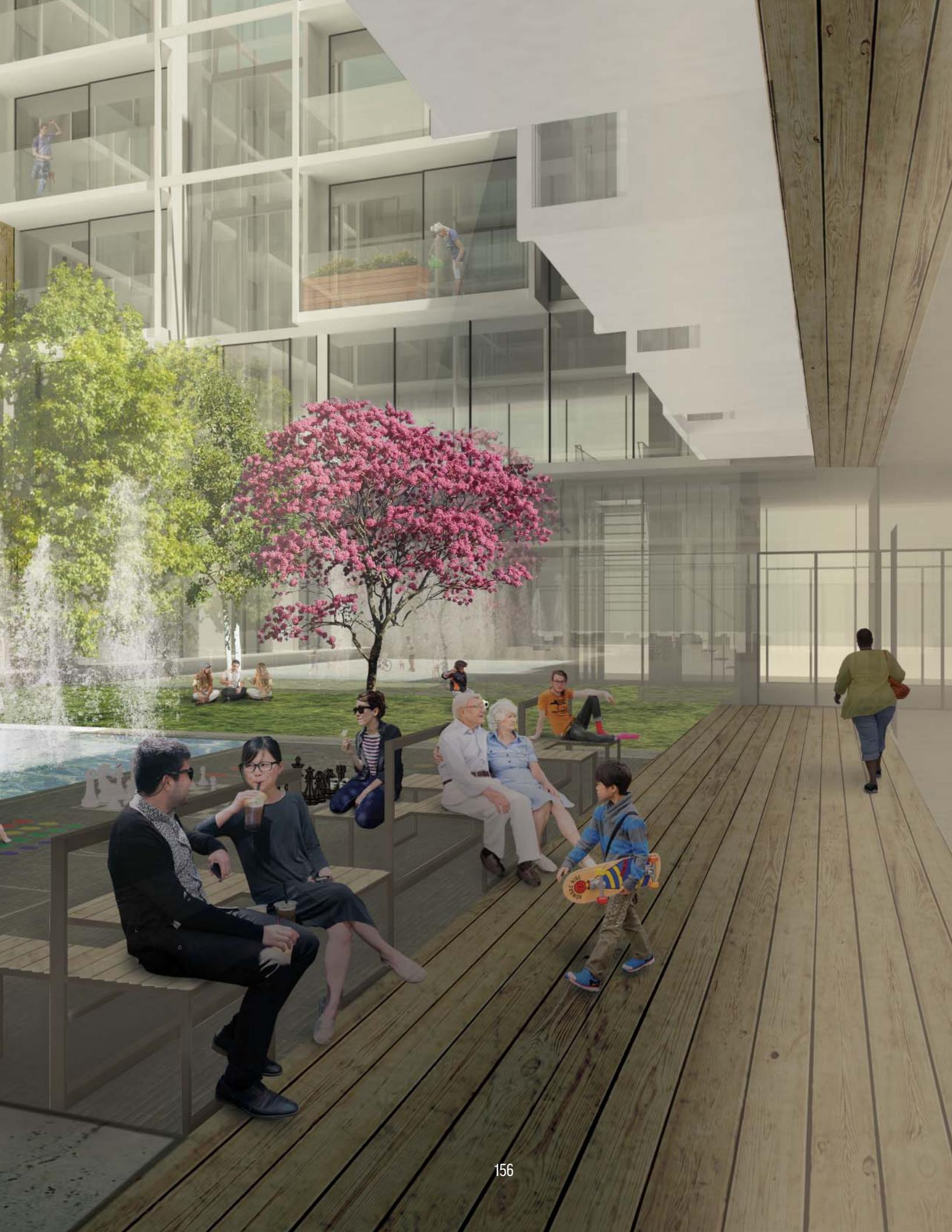
To the south is the day care, open to children of the building as well as the greater community. The space is comprised of a main room for group play and meal times, as well as age-specific rooms for more tailored care and a music room. A small library space adjoins the day care, with movable glass partitions separating the spaces when necessary. The spaces are enclosed in glass, to allow the play of the children to be visible and bring life to the building while remaining safely contained.

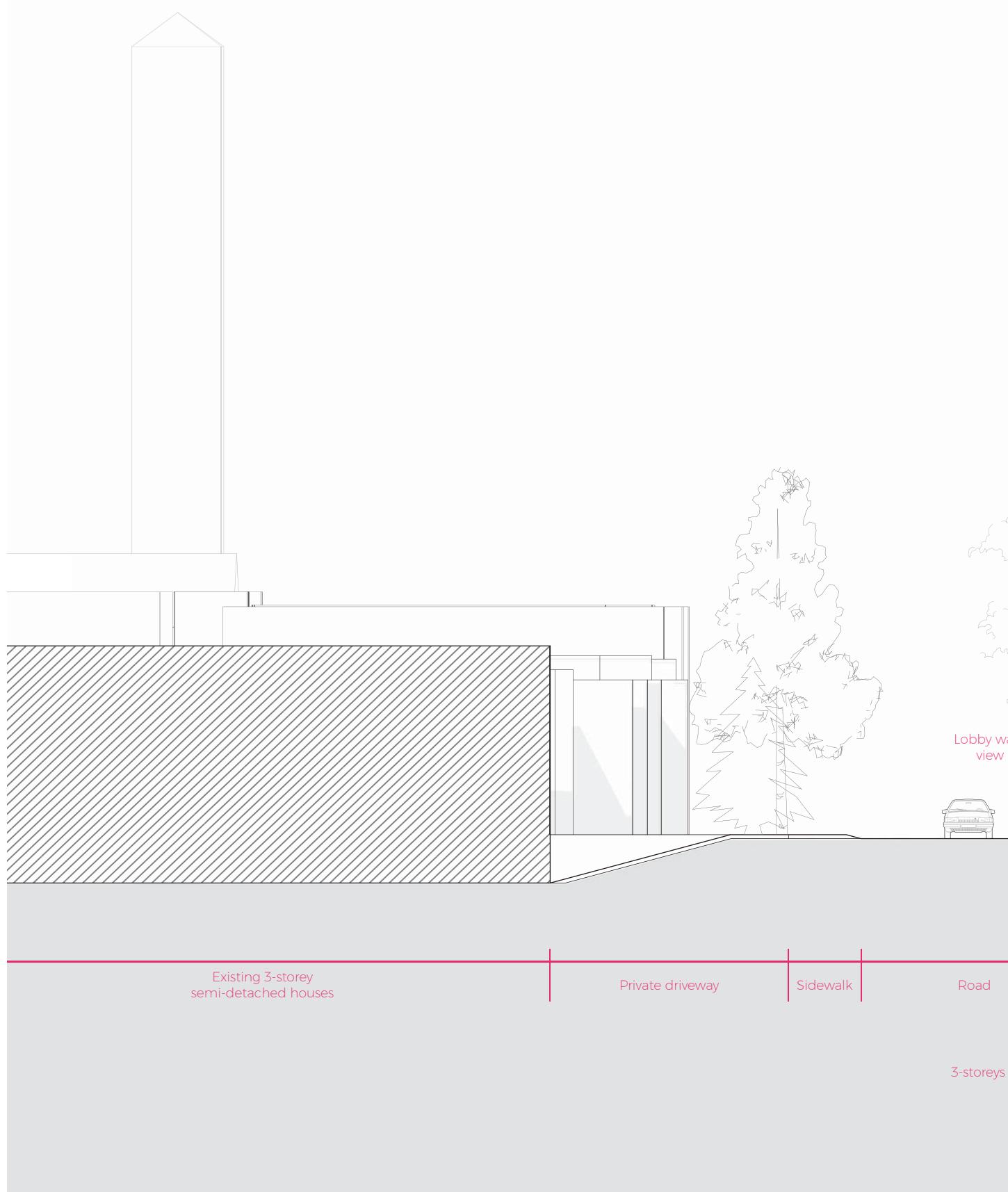
- 01 Shared Lobby
- 02 Mail Room
- 03 Cafe
- 04 Patio
- 05 Open Kitchen
- 06 Music Room
- 07 Infant Play room
- 08 2-3 Year Old Play Room
- 09 4-5 Year Old Play Room
- 10 Infant Sleep Room
- 11 Day Care Storage
- 12 Day Care Main Room
- 13 Library
- 14 Conference Rooms
- 15 Dog / Bike Wash Station
- 16 Workshop / Bike Repair
- 17 Workshop Storage
- 18 Bike Room
- 19 Electrical Room
- 20 Ramp to Below-Grade Parking
- 21 Waste Room
- 22 Loading
- 23 Moving Room
- 24 Fountain / Reflecting Pool
- 25 Playground

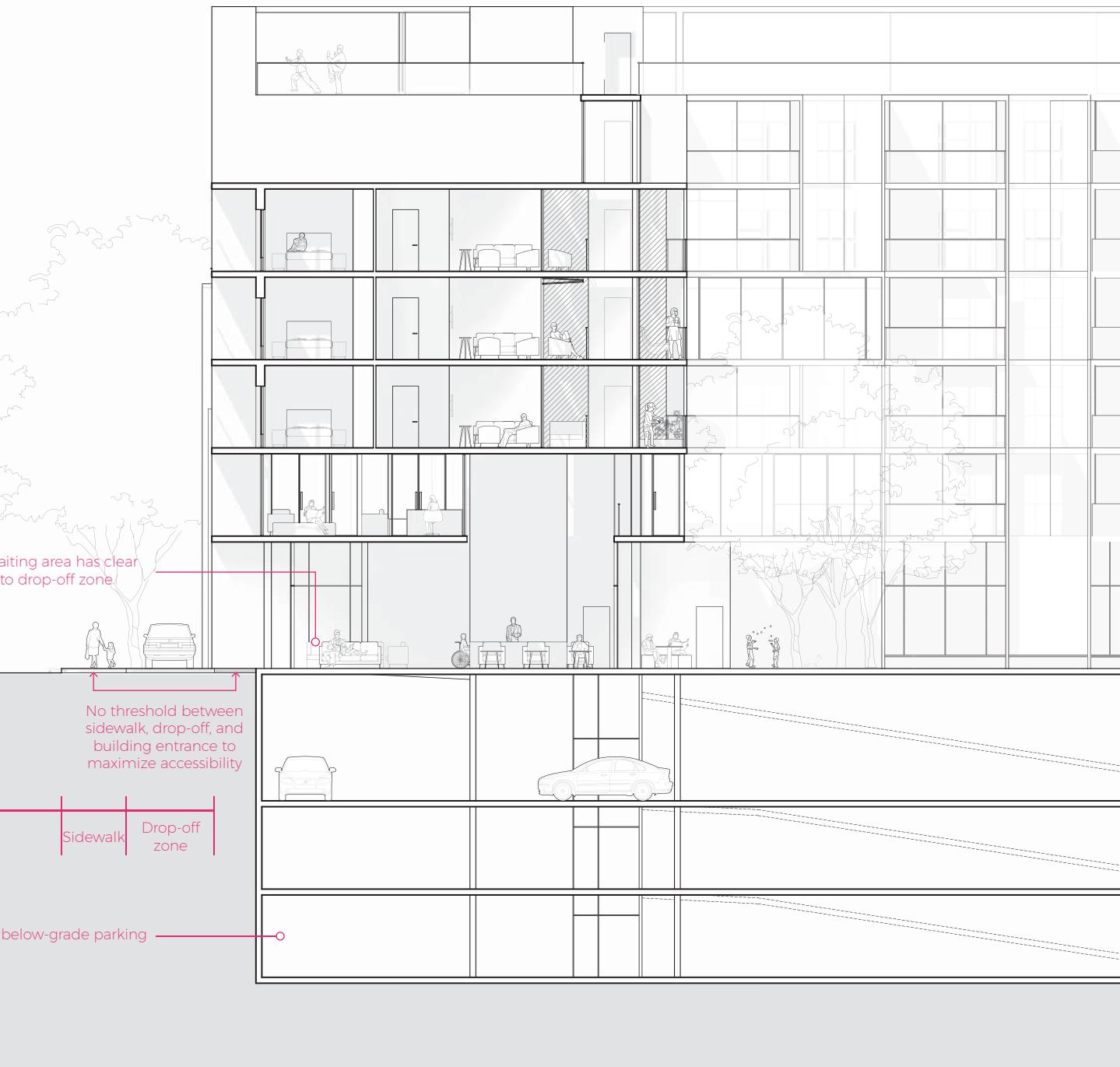












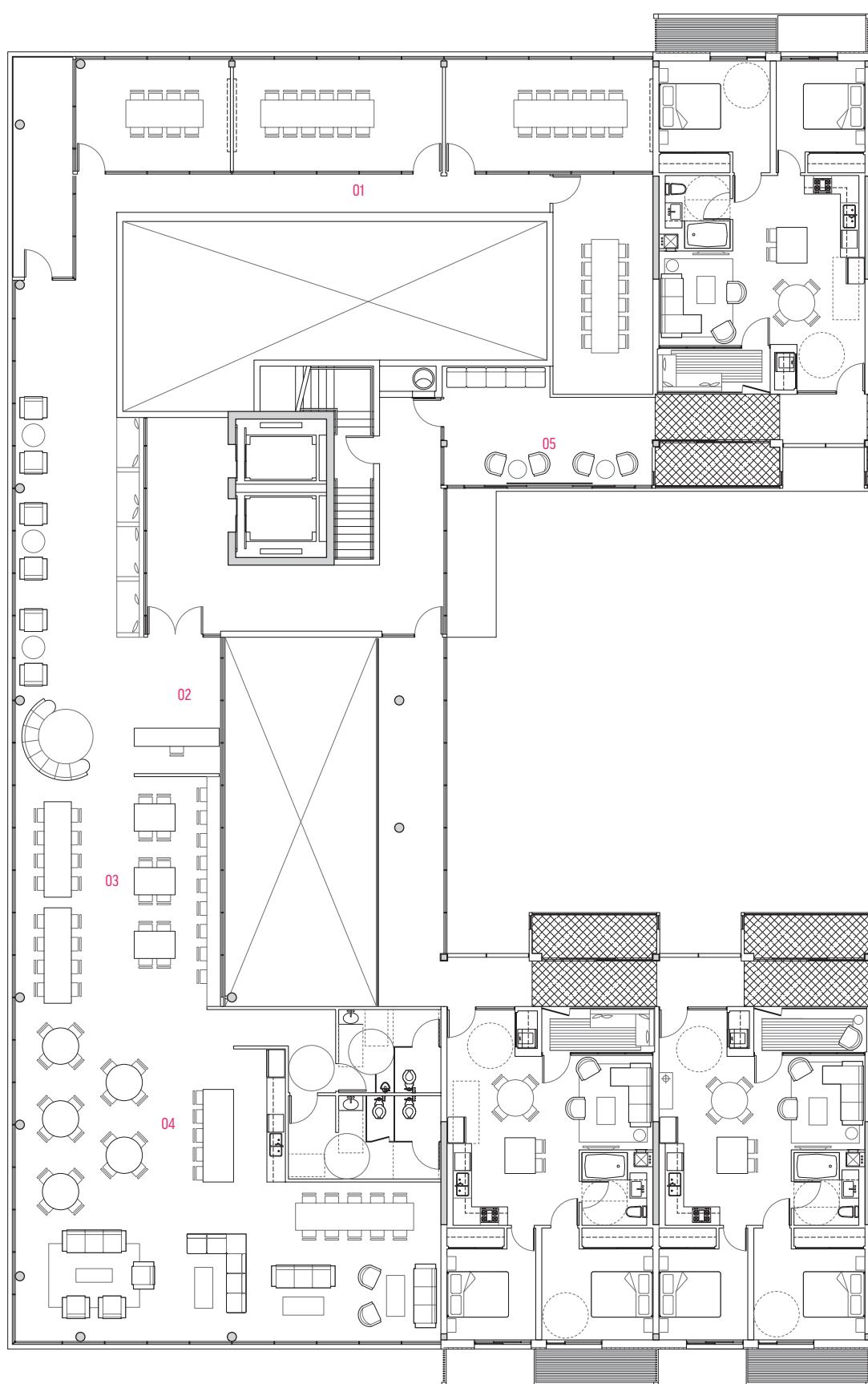


*Fig. 4.10*  
View of lobby to street



## Design Deployment

On the second floor, a co-working space occupies the west side, overlooking the lobby, street, and courtyard. On the west side, a large activity room provides space for town hall meetings, yoga, tai chi, and other group activities that require generous indoor space.



- 01 Conference Rooms
- 02 Reception
- 03 Coworking Space
- 04 Pantry
- 05 Multi-Purpose Activity Room
- 06 Lookout

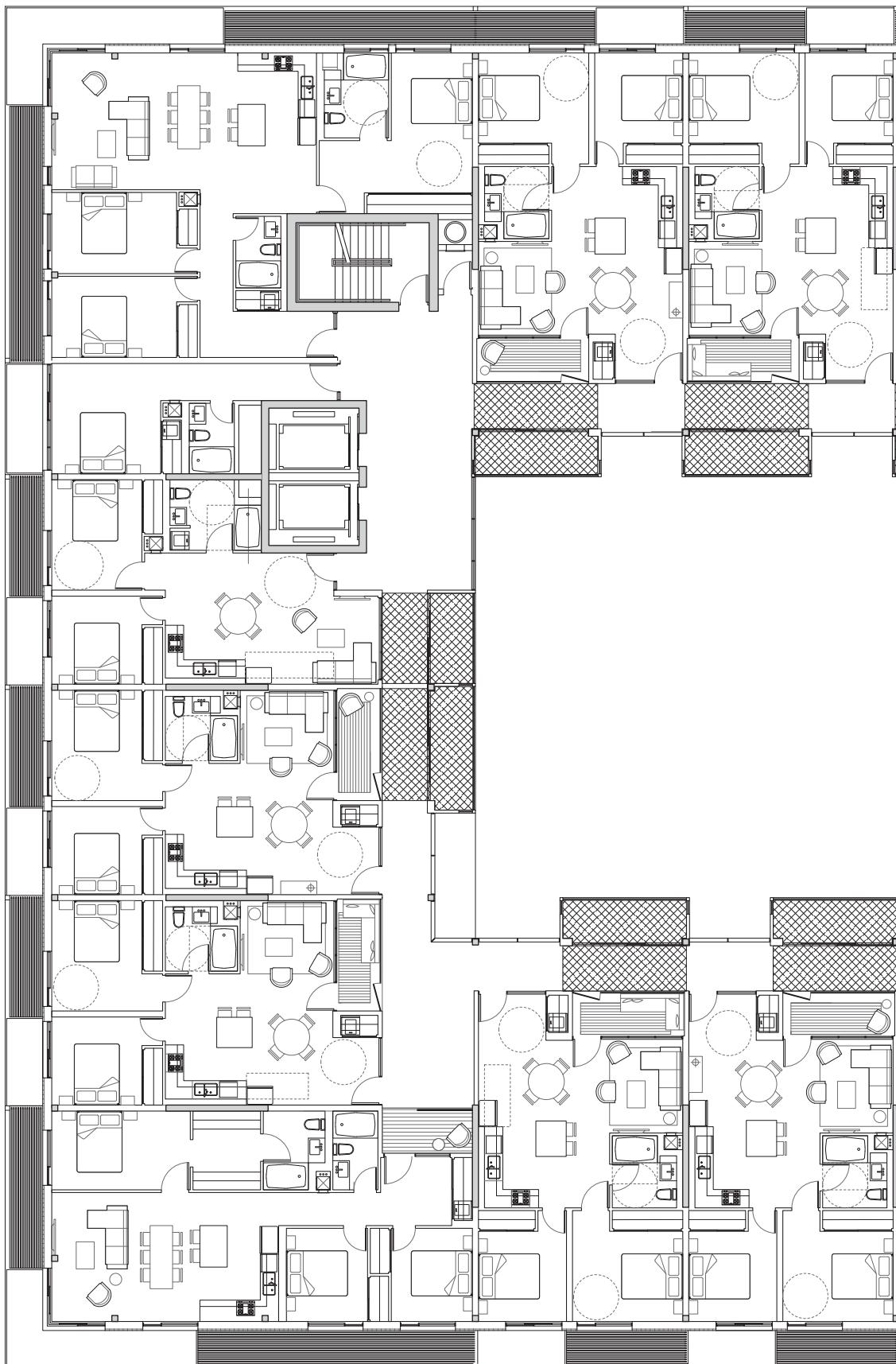


0 5 m  
15 ft  
SCALE 1: 200  
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*Fig. 4.12*  
View of co-working space

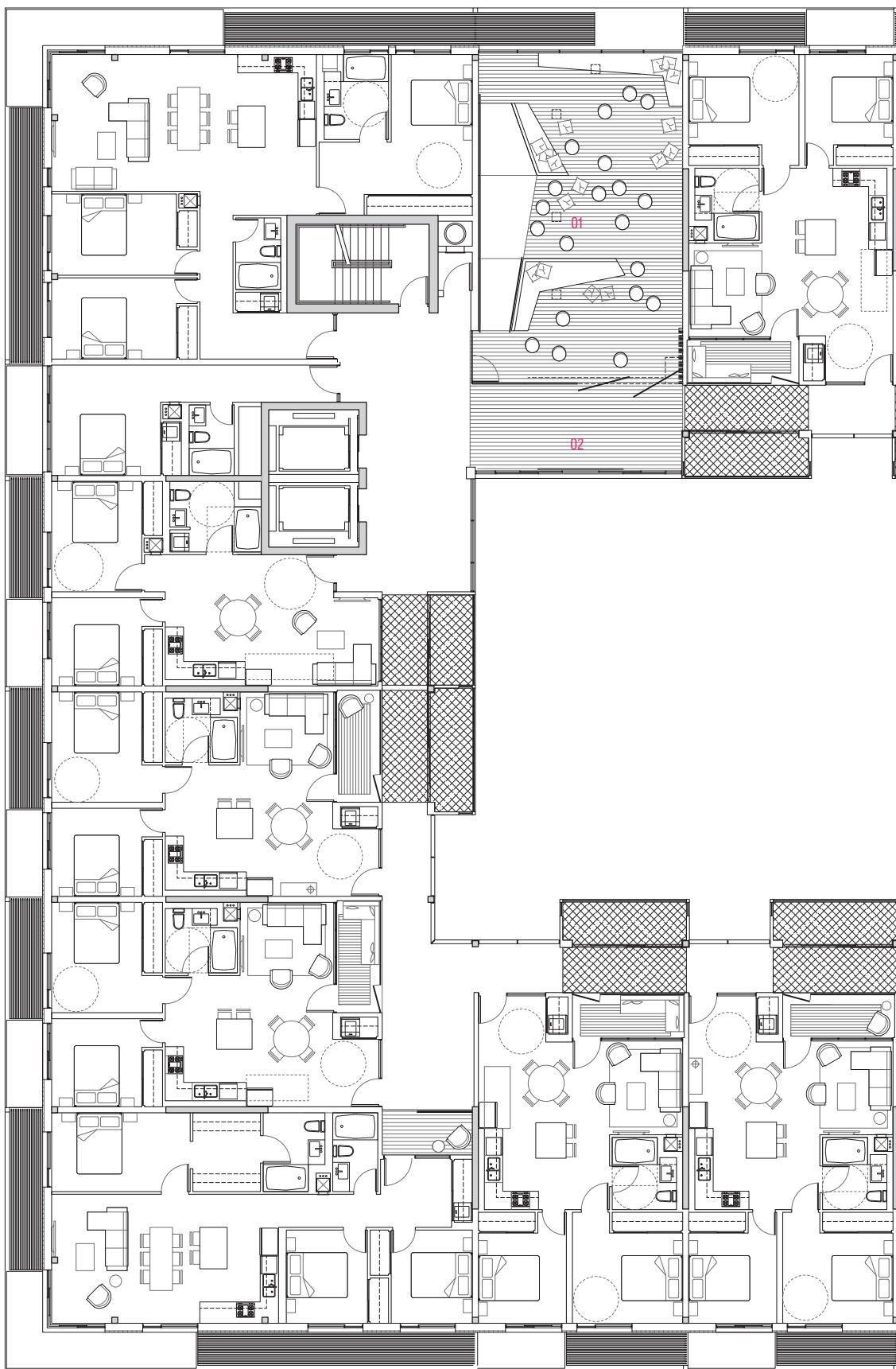


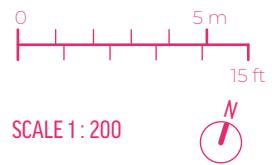
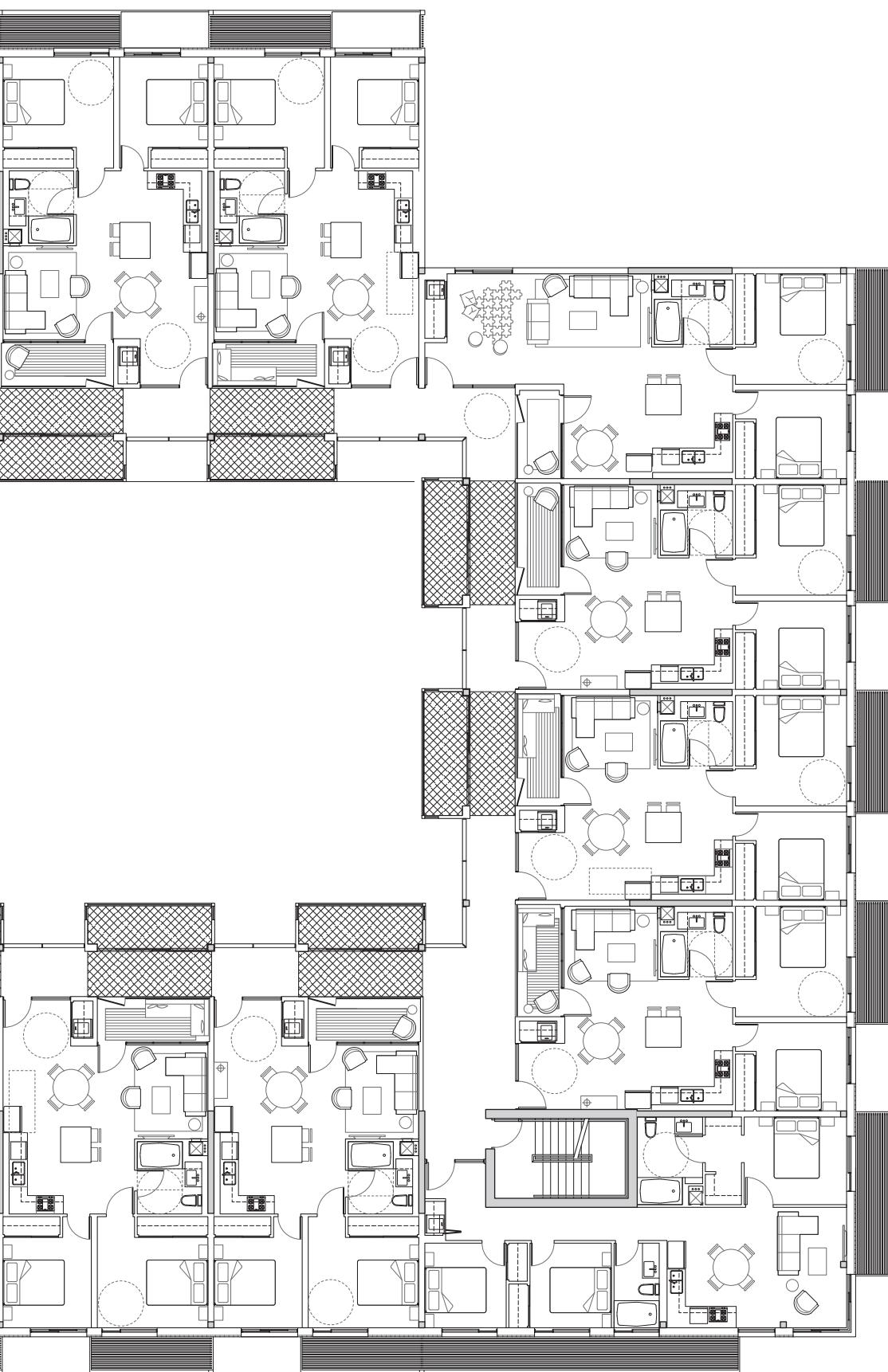
01 Fitness Room  
02 Lookout



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01 Media / Game Room  
02 Lookout

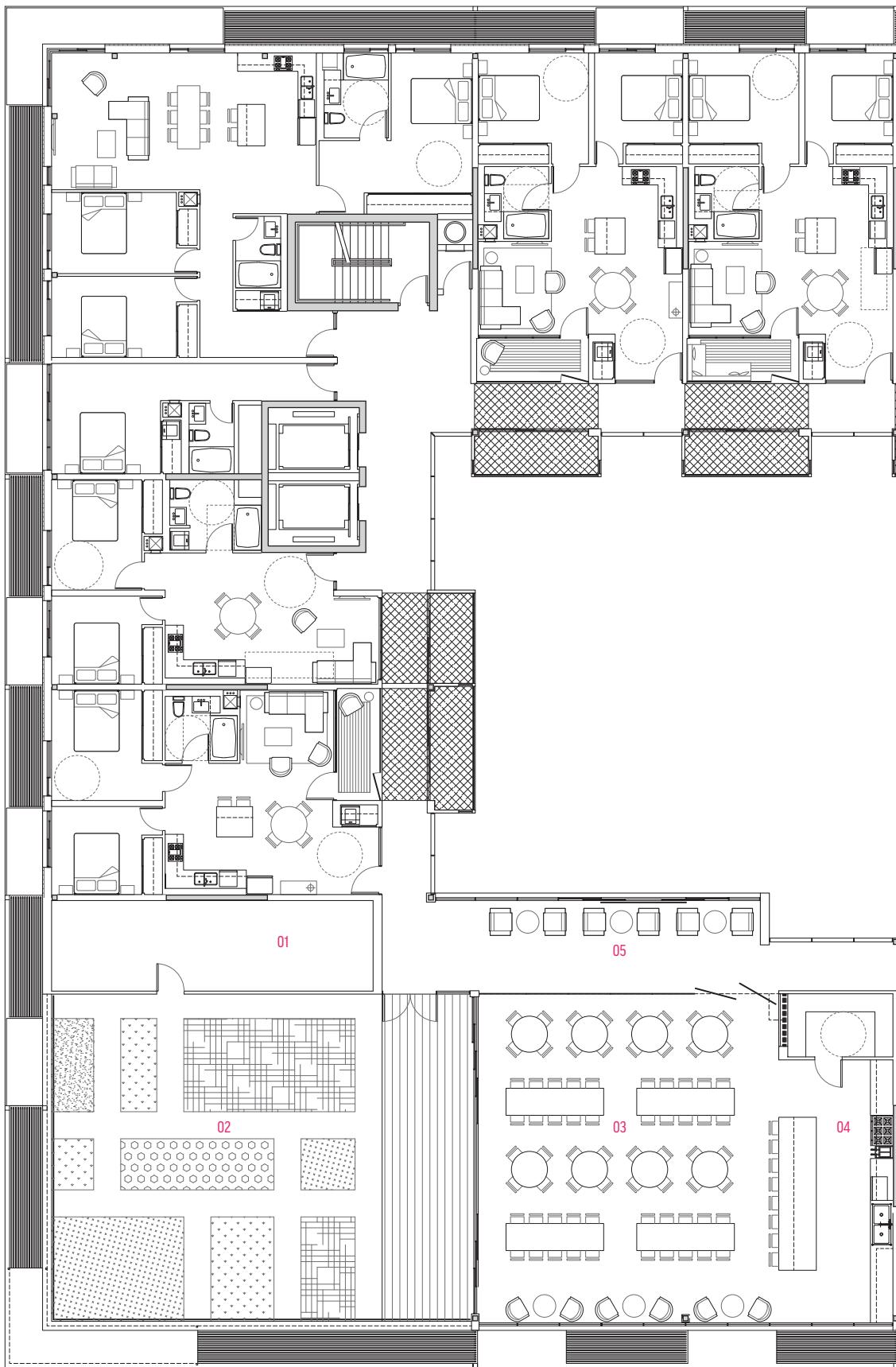




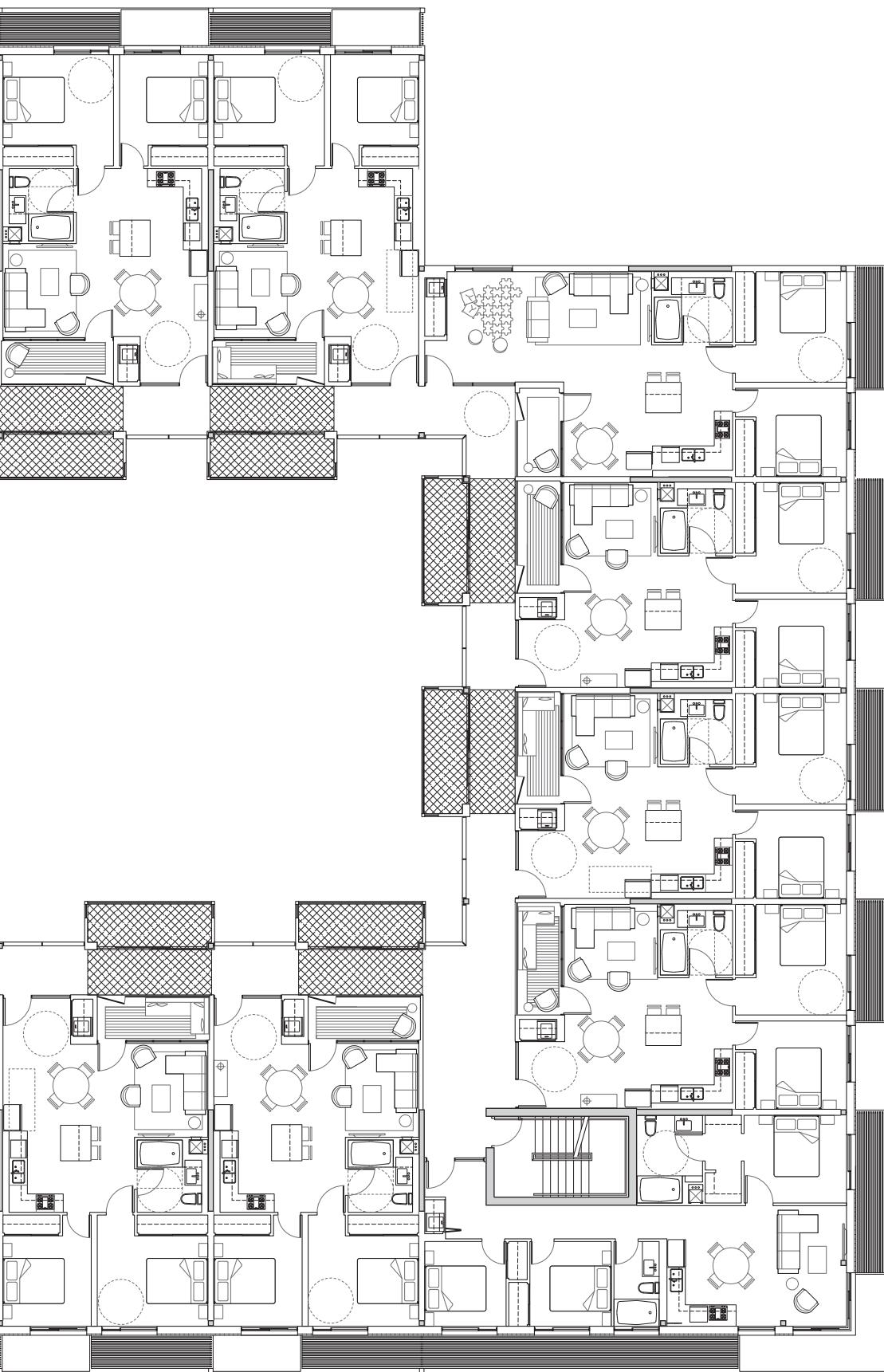
SCALE 1: 200

Media Room





- 01 Garden Storage
- 02 Herb + Vegetable Garden
- 03 Communal Dining Room
- 04 Communal Kitchen
- 05 Lookout



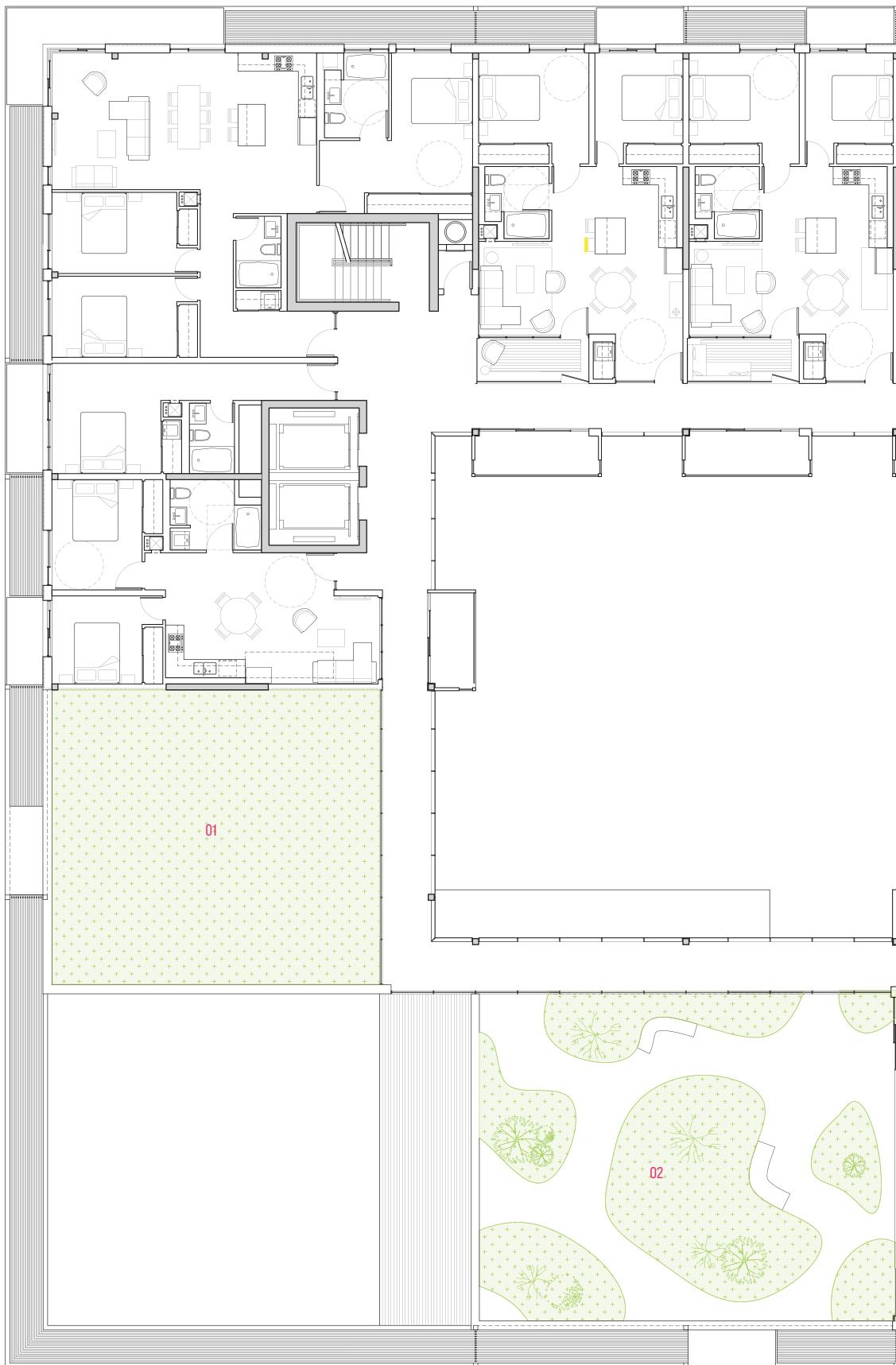
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Vegetable Garden

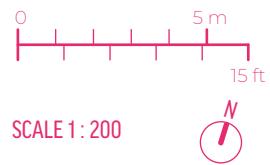


Open Kitchen Dining Room





- 01 Green Roof
- 02 Zen Garden
- 03 Quiet Lounge
- 04 Lookout

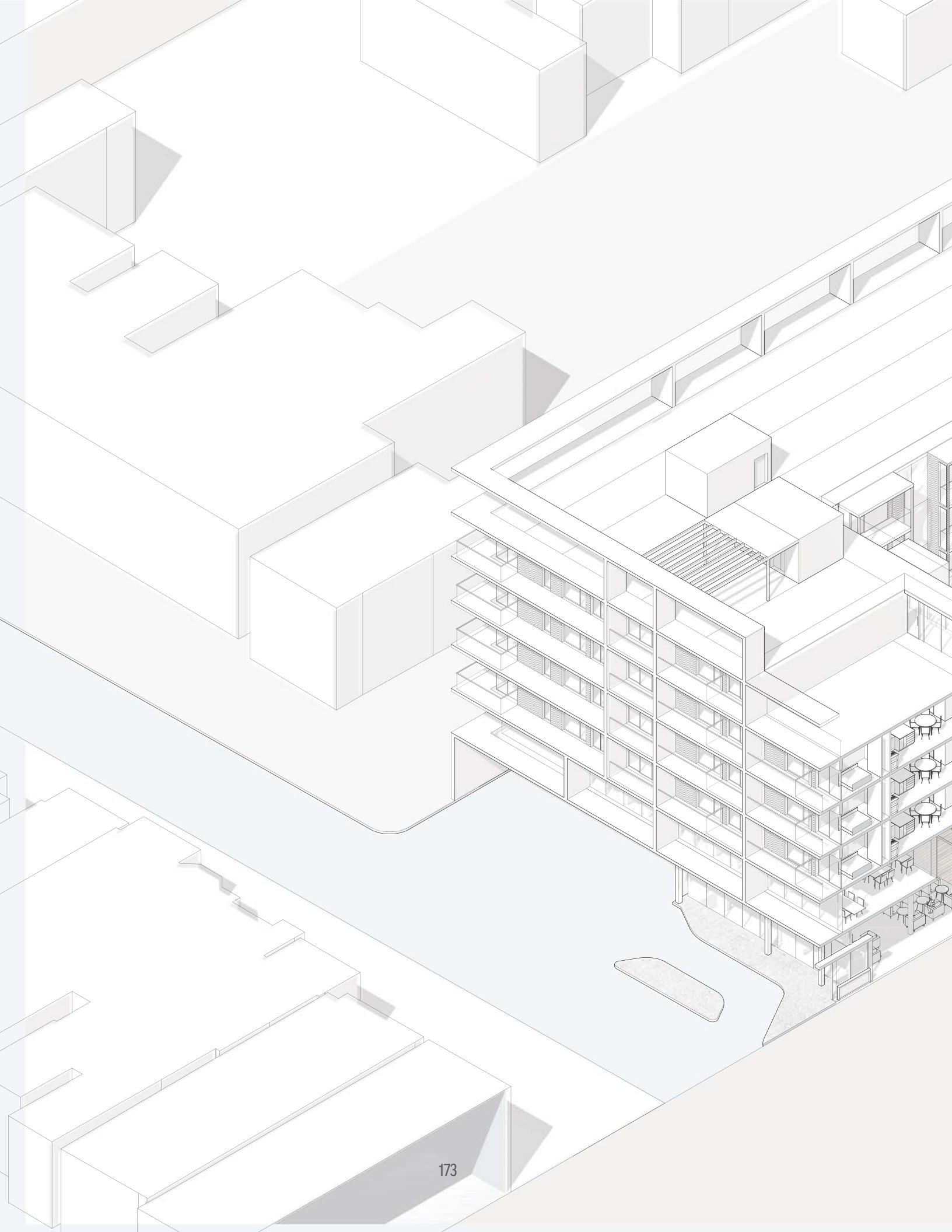


Zen Garden



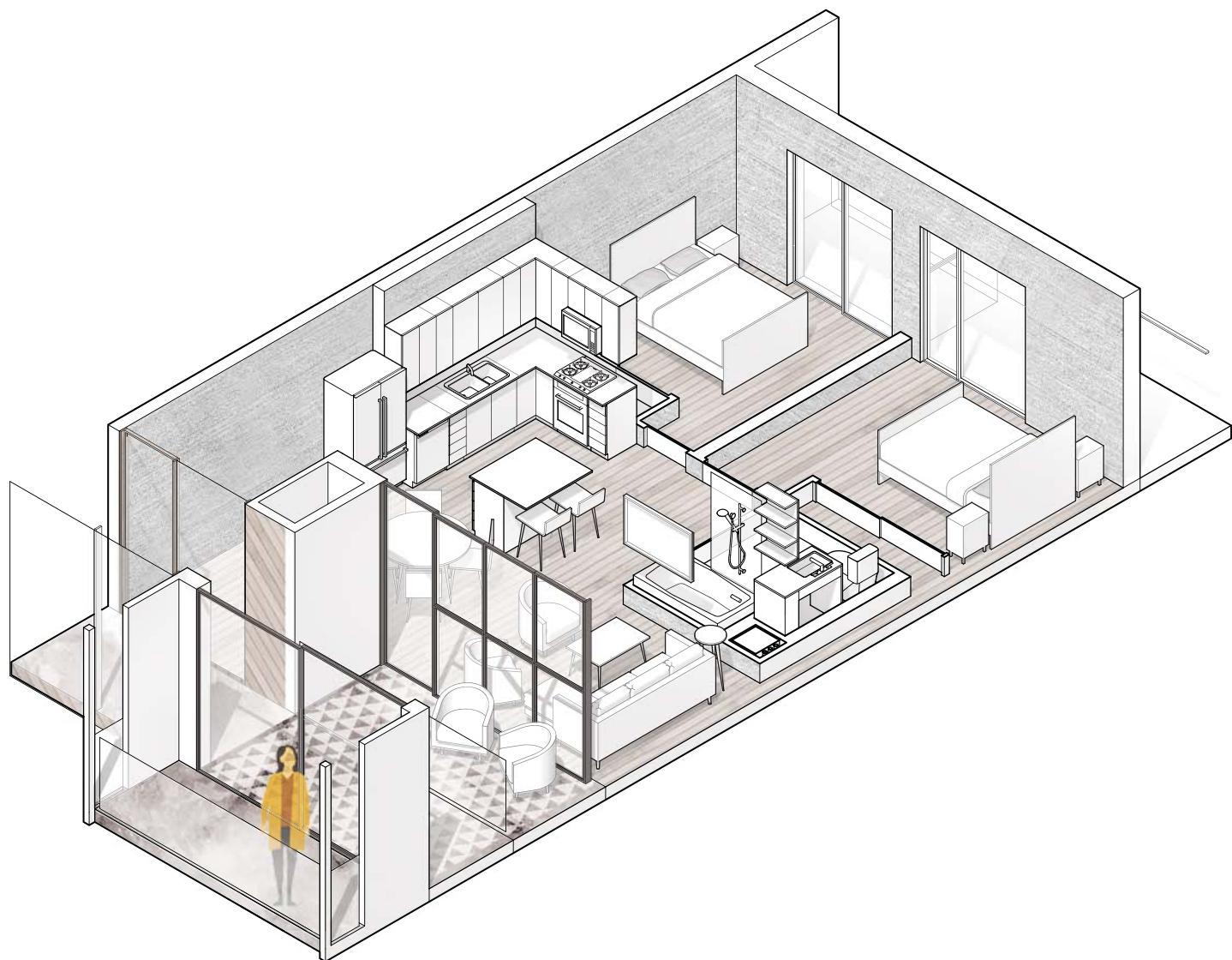
Quiet Lounge







*Fig. 4.18*  
Axonometric section



*Fig. 4.19*  
Typical unit axonometric

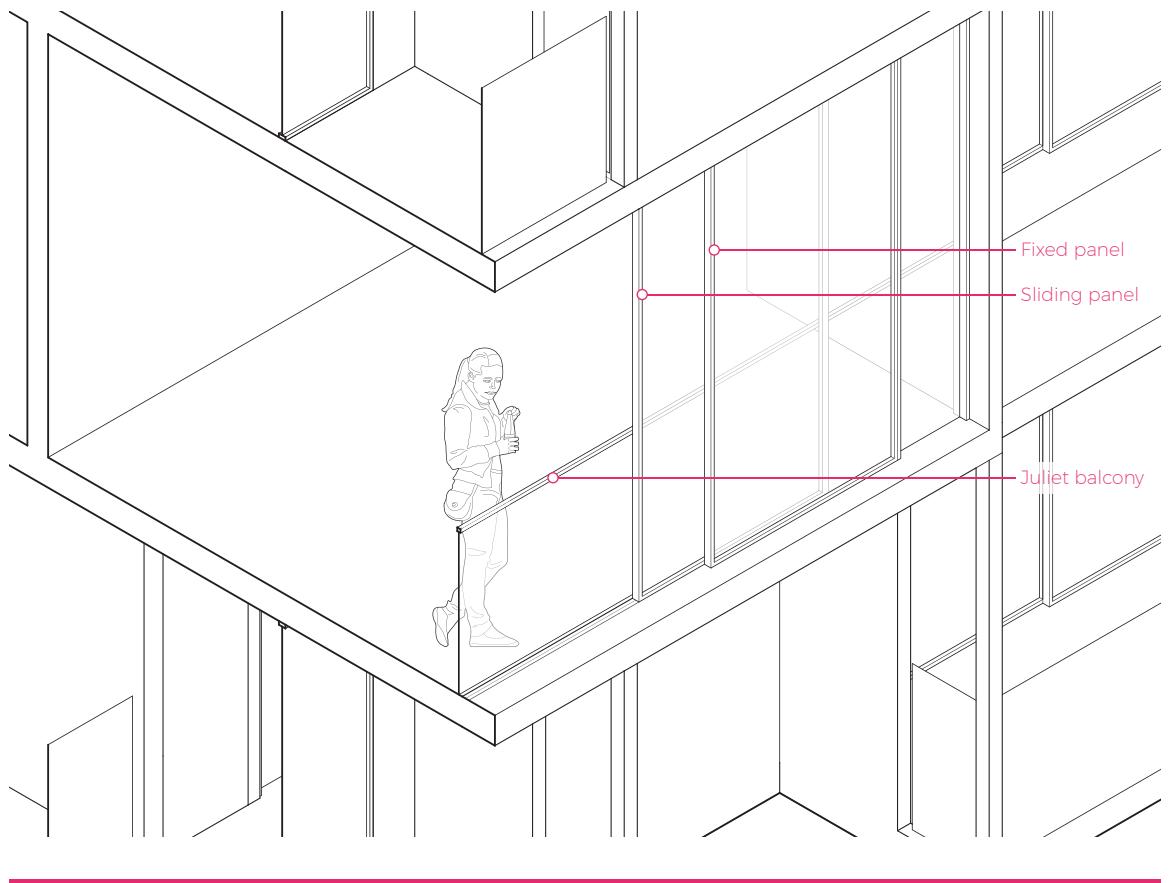


Fig. 4.20 Juliet balcony axonometric view

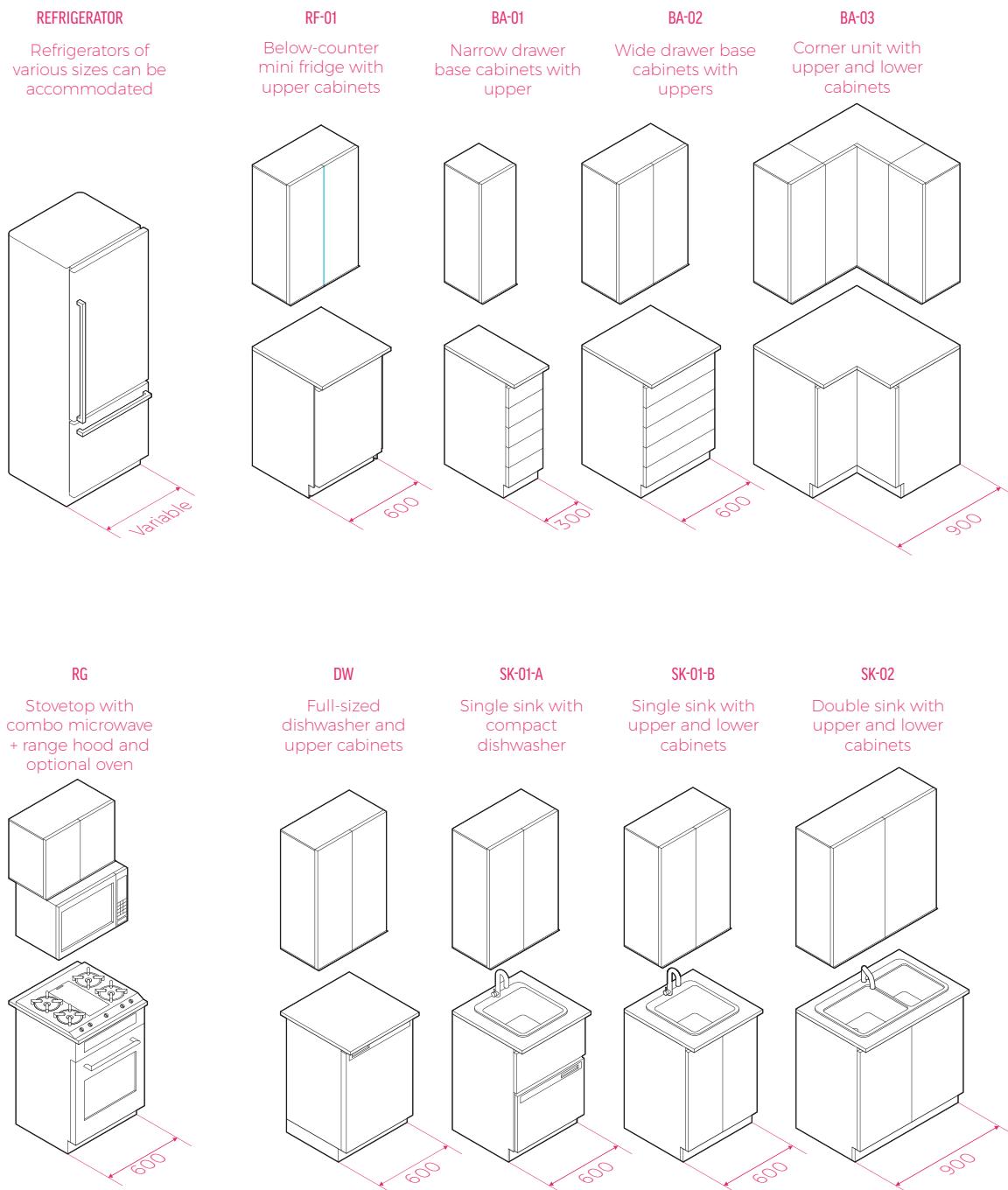


Fig. 4.21 View of library and daycare

## Design Deployment

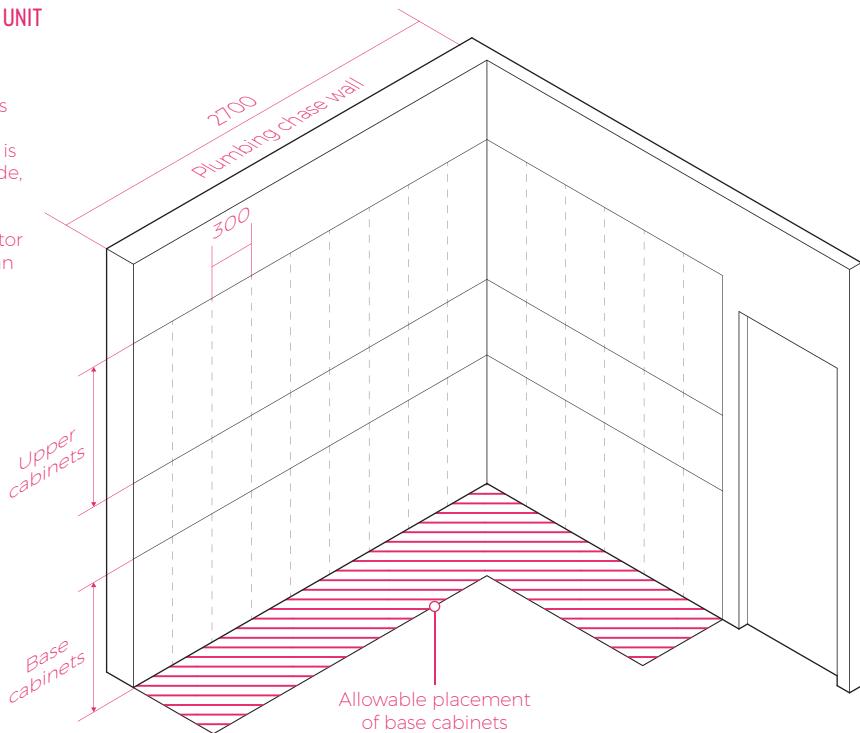
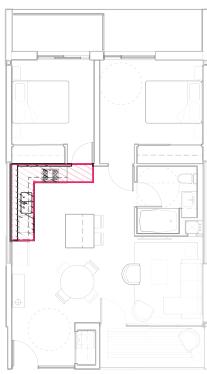
### MODULAR MOVEABLE KITCHEN COMPONENTS

Approximately half of the units in the building are fitted with modular moveable kitchens instead of traditional built-in kitchens. Residents can customize their own kitchens depending on their unit configuration and household needs. If residents move out, they can choose to take their kitchen units with them or include them in the sale of the unit.



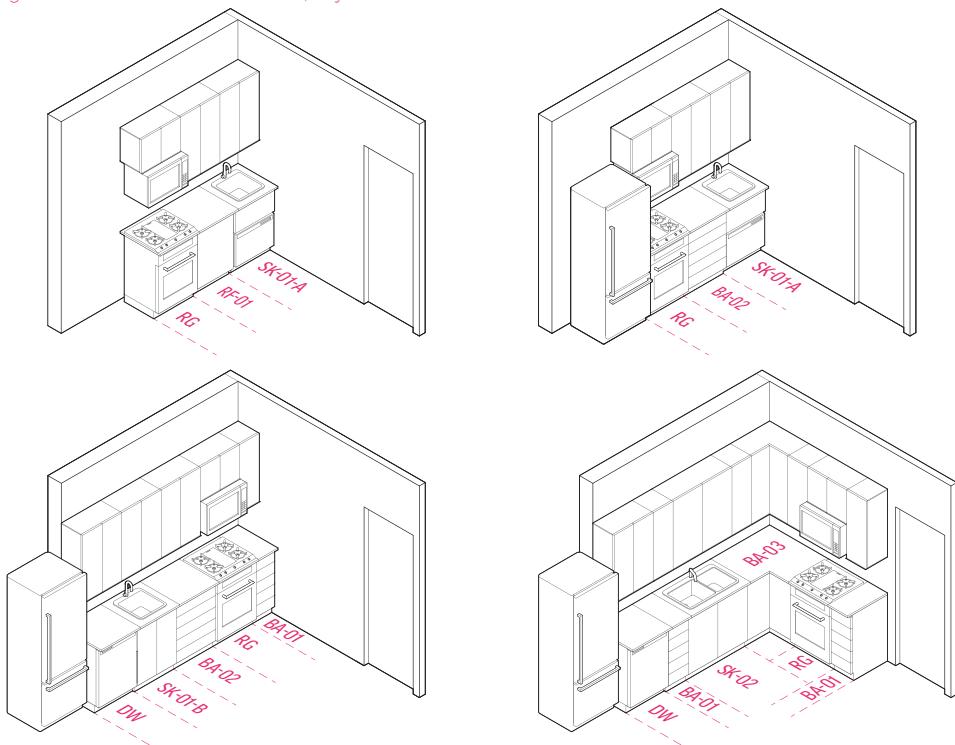
### MODULAR KITCHEN PLACEMENT IN UNIT

Each unit has a 2700 mm long plumbing chase wall against which the modular kitchen units can be placed, in 300 mm increments. Since each module is either 300, 600, or 900 mm wide, they can be rearranged and placed in various configurations against the wall. As the refrigerator does not require plumbing, it can be placed anywhere.



### SAMPLE KITCHEN CONFIGURATIONS

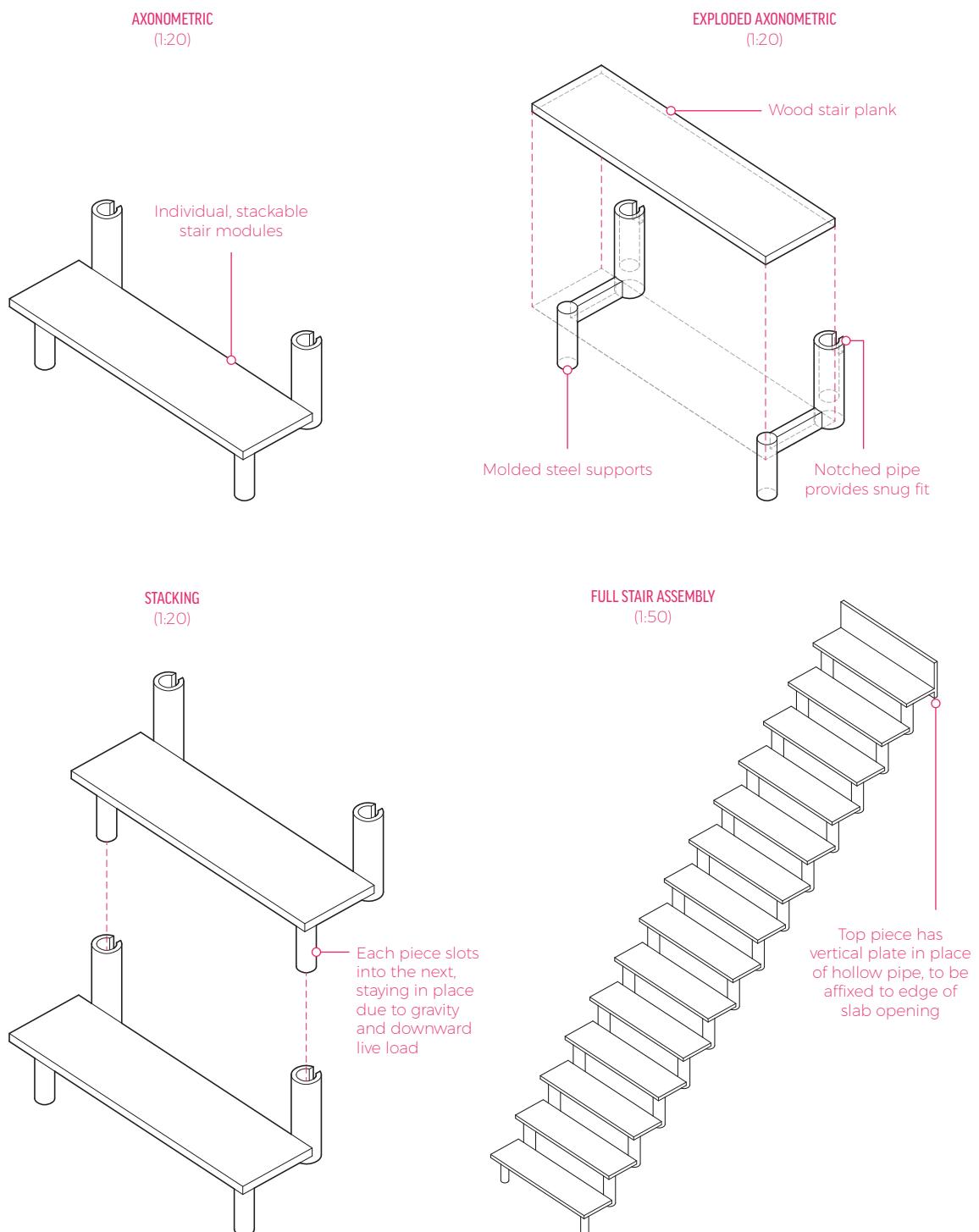
Depending on the needs of the household, any number of module units can be used.



*Fig. 4.22*  
Diagram of modular kitchen components and sample configurations

### MODULAR STAIR

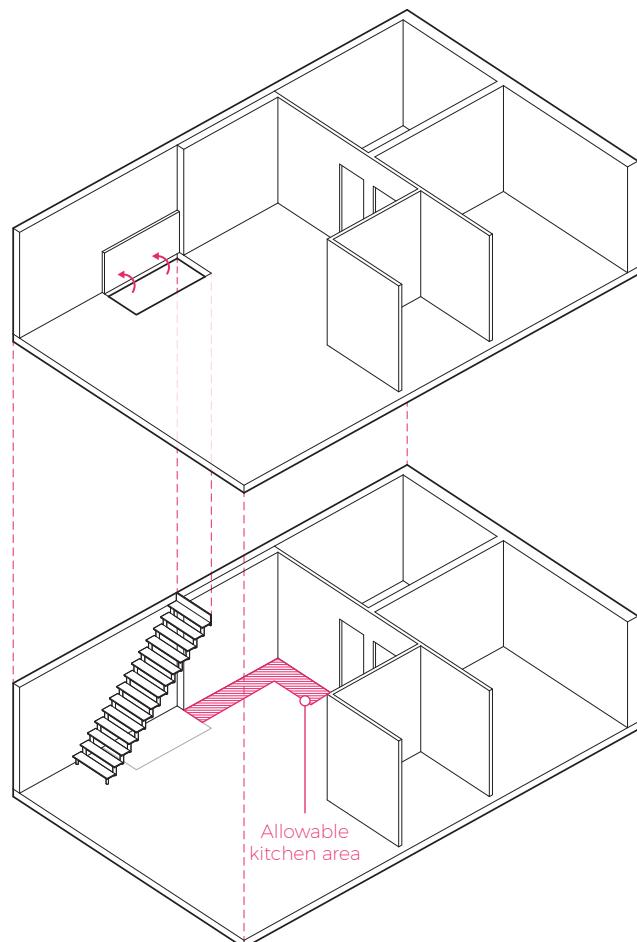
Units with moveable kitchens also have the option of installing modular stairs, for residents who wish to connect two units on different floors. Each stair module can be disassembled into its three main components (two supports, one tread, and accompanying hardware) and stored compactly when not in use.



*Fig. 4.23*  
Diagram of modular stair components

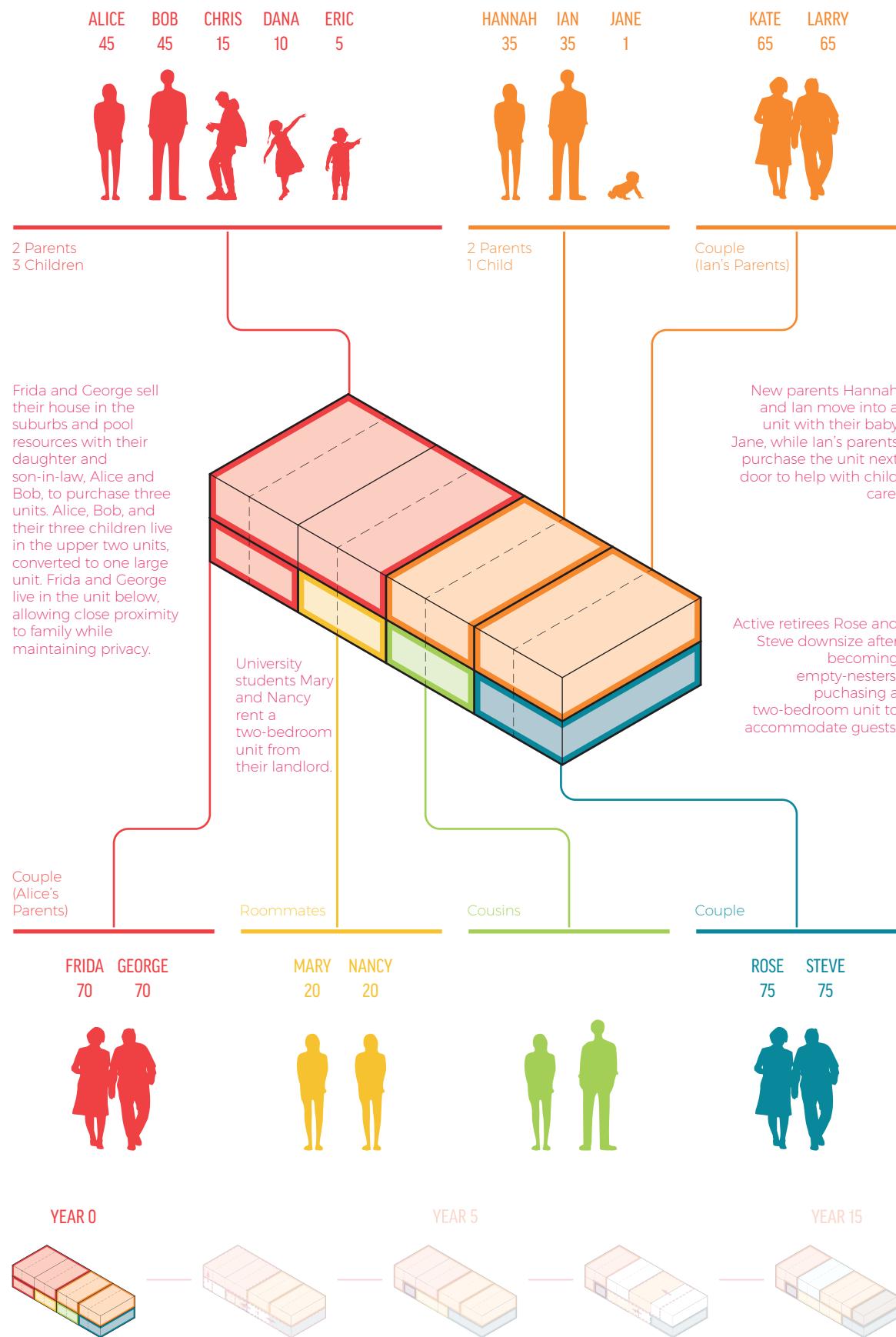
## STAIR PLACEMENT

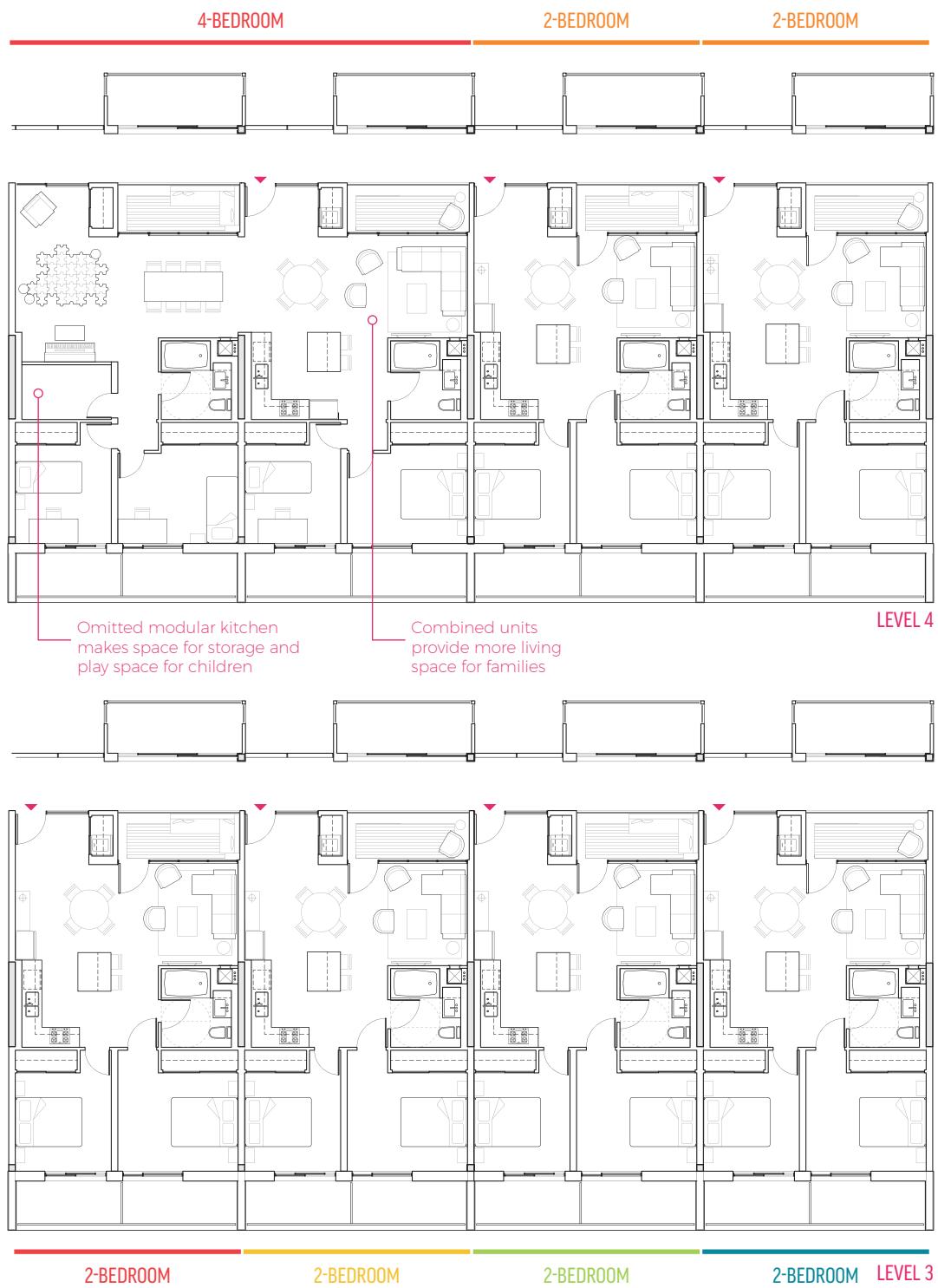
An opening with swing door is built into the concrete floor in each of these units, much in the way a house uses a trap door to access the attic. When the units are occupied separately, the door closes flush to the floor and blends in seamlessly; when the units are combined, the door is latched open and the stair is installed.



*Fig. 4.24*  
Diagram of modular stair components and configuration

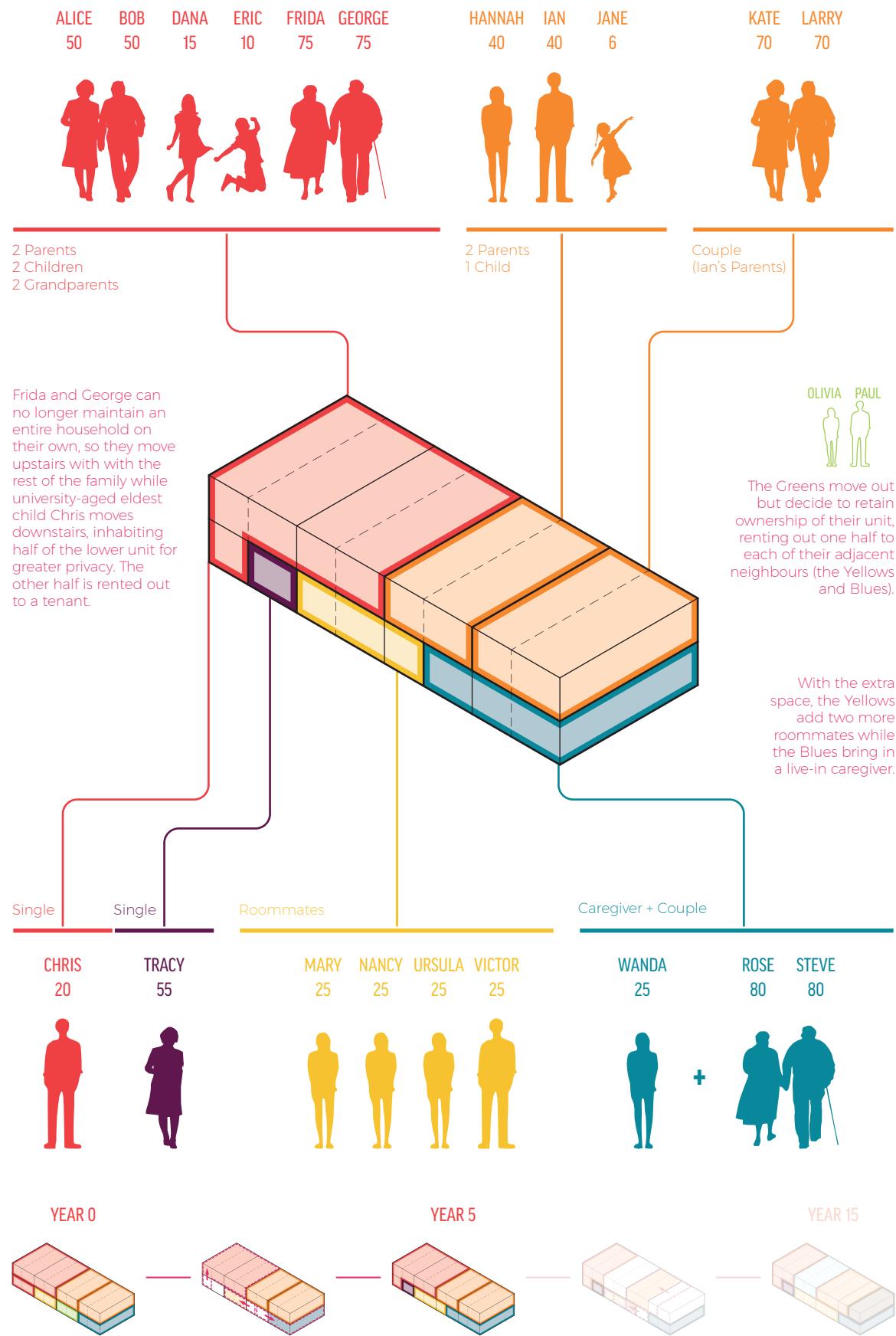
## Design Deployment

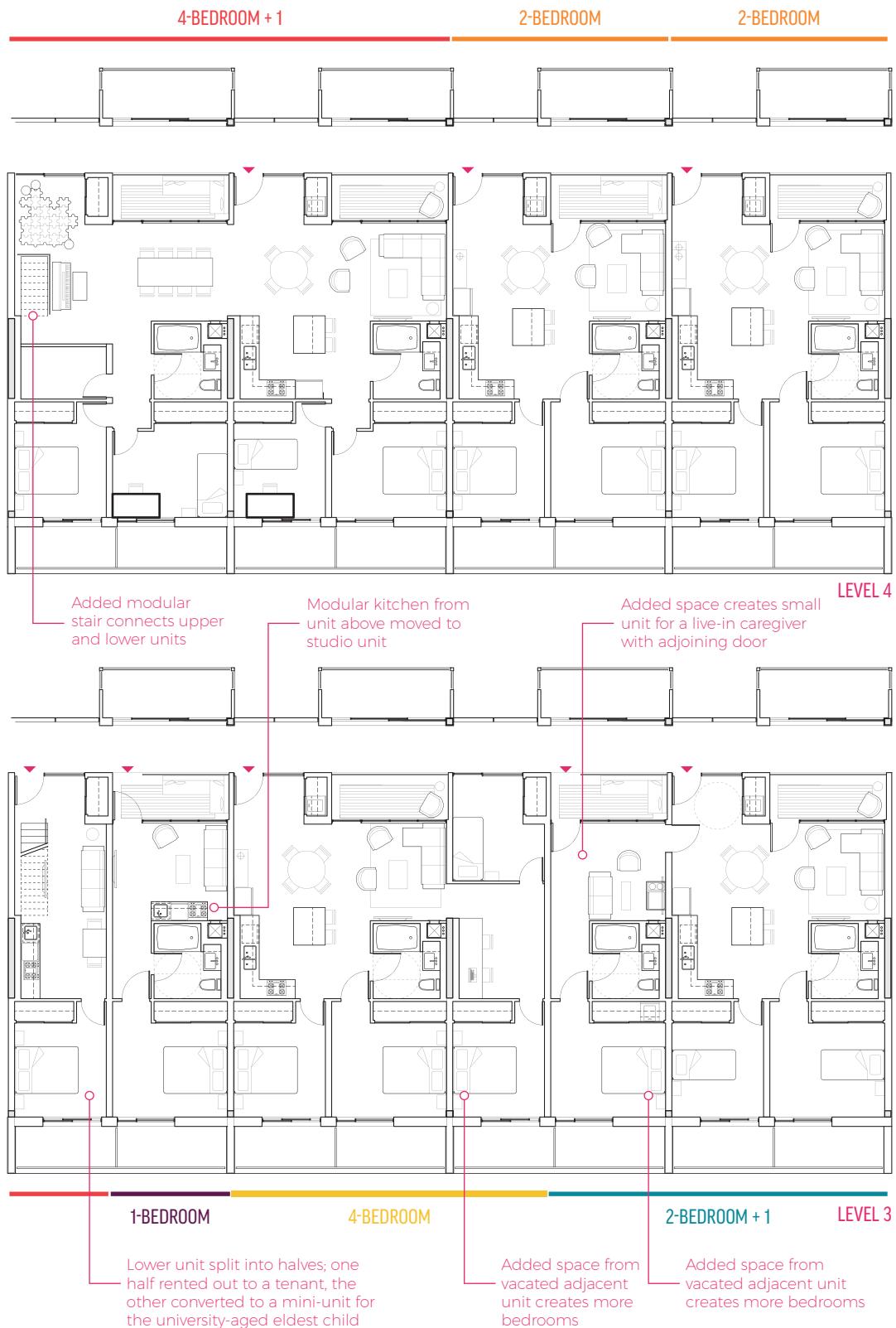




*Fig. 4.25*  
Unit progression diagram over time, Year 1

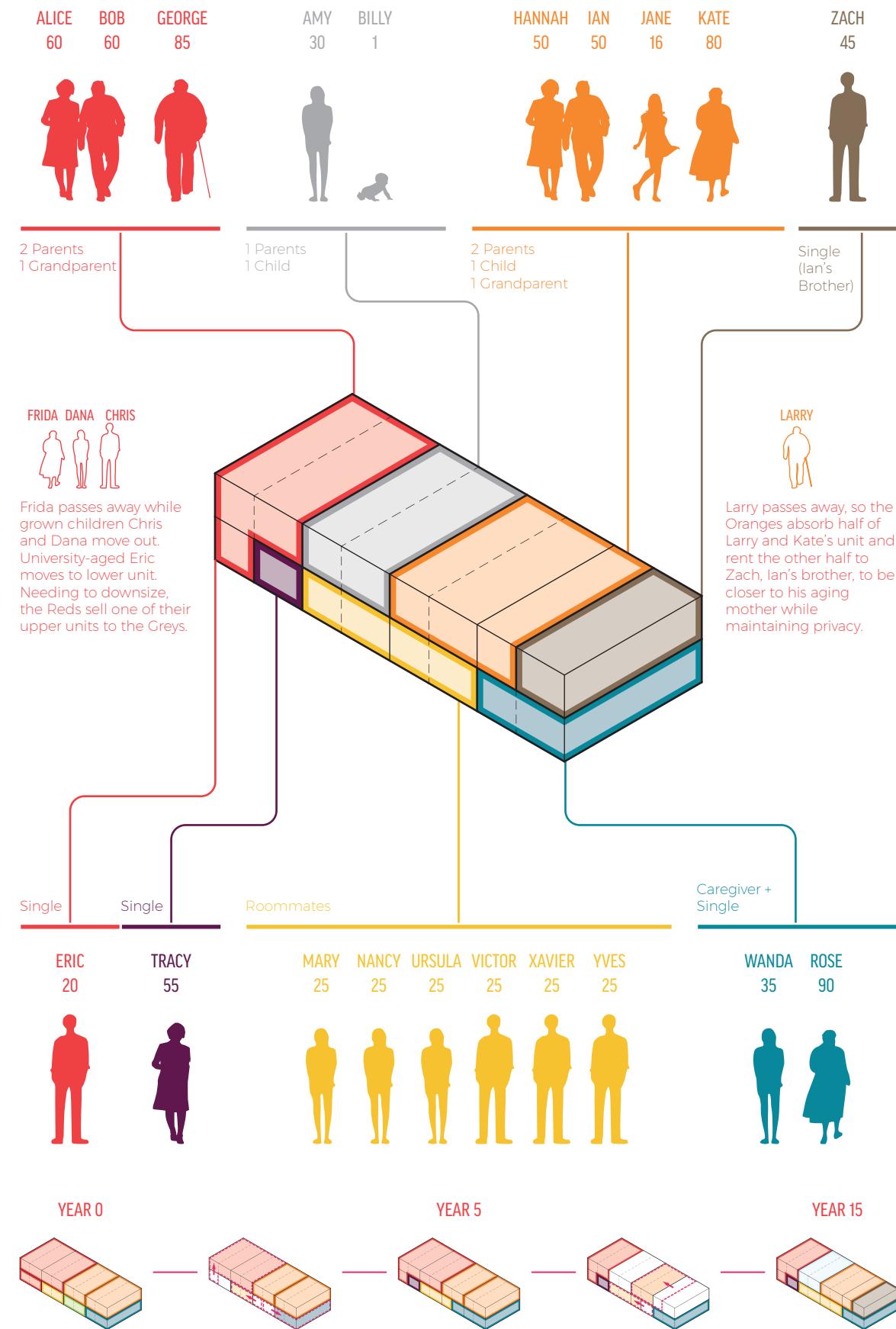
## Design Deployment





*Fig. 4.26*  
Unit progression diagram over time, Year 5

## Design Deployment





*Fig. 4.27*  
Unit progression diagram over time, Year 15

## CONCLUSION

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The shift toward older, more urban populations is a worldwide phenomenon. As this change continues to materialize in the coming decades, the demand for flexible, adaptable, responsive housing will only increase. Many find themselves restricted to condo living due to astronomical real estate prices, shoe-horning themselves into sub-optimal living conditions by necessity. With new construction focused mainly on compact mid- and high-rise condos, few alternatives exist for households other than young, childless, urban couples. Older adults face a difficult decision when considering downsizing, often being compelled to choose between trying to age in place in their existing homes, move into a small, isolated apartment in the city, or opt for some sort of seniors' housing. In Toronto, non-traditional and multi-generational households alike have already begun to bootstrap themselves out of an inadequate and unaffordable housing market by buying up multiple properties and adapting them to their needs, or by pooling resources to co-purchase a larger property. To address many of these issues concurrently, an intergenerational housing solution is proposed. Rather than segregate the housing market so heavily by age and lifestyle, this thesis suggests that inclusion and interdependence are the key to providing effective housing for all. Through the use of a set of design principles that benefit a wider range of people, with special consideration toward those not targeted by the mainstream condo market, people of all ages can find adequate, quality housing.

As architects, we should respond to the demand for more diverse housing options by further investigating housing models around the world. There are many valuable lessons to be learned, especially in countries that have already been adjusting to an aging population for years, like Japan and Italy. Canada's population has only recently begun aging, so there is still time to develop solutions before the situation becomes more dire.

Architects cannot pursue the proposal of intergenerational housing alone. Since all architecture is a team effort, this proposal relies on the cooperation and leadership of multiple disciplines and trades. Developers and government entities at multiple levels must participate heavily to make this concept economically feasible, as it is inherently not an ordinary condo

development project.

This thesis is intended to widen the discourse surrounding urban condo design, giving serious consideration to problems of exclusivity, affordability, ageism, and spatial quality. Some questions remain for future exploration.

Firstly, what are the ownership and funding structures within which a project like this could feasibly be built? This thesis explores the condominium ownership model to most closely simulate the conditions of the current housing market in Toronto. It also serves as the most restrictive test case, as the private open market and its profit-driven motivations are most difficult to push up against. If a generous housing community like this could be made to work financially in an open market setting, it is most likely to be adopted in larger numbers as the private sector tends to move more quickly than the public sector. However, other models like co-ops or even government-funded long-term housing may be more feasible and provide greater financial flexibility, improving construction quality and overall administration of the community. These models have generally become rare in Canada, particularly in Toronto, so it may be challenging to bring a project like this to fruition in this setting. To study these potentials, an initial estimate of construction costs should be performed on this midrise scheme and compared to average market rates. Once a rough comparison of costs is established, more in-depth consideration of the various ownership models can be given.

Can these principles be successfully deployed over a larger, denser scale, perhaps in a traditional tower-podium typology? As the demand for high-density housing continues to grow in Toronto and in other large cities worldwide, the intergenerational housing model would best serve aging populations at larger scales if not restricted to mid-rise housing that tends to be less cost effective and less conducive to efficient city growth. There are inherent obstacles to this typology due to its extreme compactness and height, posing challenges in creating social spaces on each floor and atrium or courtyard spaces that can bring light into the depths of a tall tower.

Is there a demand for larger basic units, perhaps in more suburban areas? What obstacles might such a project face in the context of other cities or cultures? This thesis proposes both a general template, hopefully widely applicable to various cultural contexts, and a site-specific deployment of these principles in a dense North American metropolis. The tools developed here may manifest in any number of ways as they are deployed in other settings. In more suburban sites, the pulled-apart corridor condition could take the form of a wide promenade or even a park, incorporated large farming components and employment opportunities for community members. Units may be larger, without the constraints of dense city building, and take on

different configurations that allow for cross ventilation in warmer climates. In certain African and Latin American cultures where birth rates remain high, the base unit might contain more bedrooms for even larger family homes.

How does the concept of place and home figure into a project like this? An intergenerational community is, by definition, not a seniors home, and is intended to combat the isolation of seniors therein. A significant contributing factor to the lack of place in seniors housing is the simple fact that older adults often move to these facilities near the end of life, usually by necessity, and are forced to live in an unfamiliar place with strangers and medical staff. By introducing the idea of intergenerational housing into the mainstream market, people can age in place and build ties to their community over years of living in the same building. To further strengthen the identity of each housing community, architects must strive to build in site-specific, community-minded places that have a clear and well-rooted *genius loci*.

Perhaps elements of a long-term care home might be incorporated into the design of such an intergenerational community to further facilitate aging in place and allow even those in the Fourth Age, the Old-Old, to remain in their community until the end. Flexible units can accommodate home care workers, but when more medical intervention is required, perhaps a section or floor of the building can be dedicated to those needing the care of nurses, constructed with adequate mechanical, plumbing, and other systems to accommodate a more hospital-like setting when needed.

While these questions may take considerable time to answer, the testing and refinement of the design principles proposed in this thesis can begin imminently. Through continued and evolving applications of intergenerational architecture at multiple scales, the future of urban housing can sustain our rapidly changing world.



## BIBLIOGRAPHY

*Aging and Urbanization: Principles for Creating Sustainable, Growth-Oriented and Age-Friendly Cities.*

Report. Global Coalition on Aging and the McGraw Hill Financial Global Institute. McGraw Hill Financial Global Institute, 2016.

arki\_lab, *A Short Guide to How to Design Intergenerational Urban Spaces*, Danish Ministry of Immigration, Integration and Housing, 2015.

Castells, Manuel. *The Rise of the Network Society*, 2nd ed, vol. 1, 3 vols. West Sussex: Wiley-Blackwell, 2010.

Centers for Disease Control and Prevention. "History of Smallpox." *Centers for Disease Control and Prevention*. August 30, 2016. Accessed June 8, 2017. <https://www.cdc.gov/smallpox/history/history.html>.

Ciolfe, Terra. "What the Census Tells Us about Canada's Aging Population." *Macleans*, May 3, 2017.

Accessed September 5, 2017. <http://www.macleans.ca/news/canada/what-the-census-tells-us-about-canadas-aging-population/>.

City of Toronto. City Planning Division. Strategic Initiatives, Policy & Analysis. *Housing Occupancy Trends 1996-2011*. October 2015. Accessed September 12, 2017. <https://www.toronto.ca/legdocs/mmis/2015/pg/bgrd/backgroundfile-84816.pdf>.

CNN Staff, "What does the biggest human migration on earth look like on a map?" CNN Travel, February 18, 2015. Accessed September 10, 2017. <http://www.cnn.com/travel/article/china-spring-migration-chunyun/index.html>.

Decady, Yves and Lawson Greenberg. "Ninety years of change in life expectancy." *Health at a Glance*. July 2014. Statistics Canada Catalogue no. 82-624-X.

Gawande, Atul. *Being Mortal: Medicine and What Matters in the End*. New York, NY: Metropolitan Books: Henry Holt and Company, LLC, 2014.

Gonzales, Christina. "How Some Torontonians Are Pooling Their Resources to Beat High Housing Prices." *Toronto Life*, February 2, 2017. Accessed September 12, 2017. <https://torontolife.com/real-estate/houses/inside-complicated-world-home-co-ownership/>.

Green, Eva G. T., Jean-Claude Deschamps, and Dario Páez. "Variation of Individualism and Collectivism within and between 20 Countries." *Journal of Cross-Cultural Psychology* 36, no. 3 (May 1, 2005): 321-39. doi:10.1177/0022022104273654.

Hedberg, E. C. *The Social Production of Intergenerational Exchange: The Value of Social Capital*. University of Chicago. University of Chicago Social Science Administration, October 28, 2004. Accessed October 10, 2017. <https://ssa.uchicago.edu/sites/default/files/uploads/10282004.pdf>

Jansen, Tiffany R. "This Nursing Home Is Also a College Dorm." CityLab. February 13, 2017. Accessed April 1, 2017. <https://www.citylab.com/equity/2015/10/the-nursing-home-thats-also-a-dorm/408424/>.

Kankanmori. "Collective House." Life in Kankanmori: Collective House Kankanmori(Tokyo). Accessed April 1, 2017. <http://www.collectivehouse.co.jp/en/kankanmori/life.html>.

Kenneally, Rhona Richman and Johanne Sloan. *Expo 67: Not Just a Souvenir*. Toronto: Univ. of Toronto Press, 2010.

Kimmelman, Michael. "The Urban Home Away From Home." *The New York Times*, January 28, 2014. Accessed October 21, 2017. <https://www.nytimes.com/2014/01/29/arts/design/lessons-from-mcdonalds-clash-with-older-koreans.html>.

Laporte, Donna. "Condo Buyer Makes His a Double." *The Toronto Star*, February 7, 2009. Accessed September 12, 2017. [https://www.thestar.com/life/homes/2009/02/07/condo\\_buyer\\_makes\\_his\\_a\\_double.html](https://www.thestar.com/life/homes/2009/02/07/condo_buyer_makes_his_a_double.html).

Laslett, Peter. A Fresh Map of Life: The Emergence of the Third Age. London: Weidenfeld & Nicolson Limited, 1989.

Levinson King, Robin. "What ever happened to the Toronto duplex?" *The Toronto Star*, February 9, 2016. Accessed October 3, 2017. <https://www.thestar.com/business/2016/02/09/what-everhappened-to-the-toronto-duplex.html>.

Longman, Jere. "85-Year-Old Marathoner Is So Fast That Even Scientists Marvel." *New York Times*, December 28, 2016. Accessed September 12, 2017. <https://www.nytimes.com/2016/12/28/sports/ed-whitlock-marathon-running.html>.

Mallgrave, Harry Francis. *Modern Architectural Theory: A Historical Survey, 1673-1968*. Cambridge: Cambridge University Press, 2009.

Milan, Anne and Nora Bohnert. "Canadian households in 2011: Type and growth" *Census in Brief*, September 2012, Statistics Canada Catalogue no. 98-312-X2011003.

Neugarten, Bernice L. "Age Groups in American Society and the Rise of the Young-Old." *The Annals of*

the American Academy of Political and Social Science 415, no. 1 (September 1, 1974).

Ommer, Rosemary E. *Coasts Under Stress: Restructuring and Social-Ecological Health*. Montréal: McGill-Queens University Press, 2014.

Performance Urban Planning. "13th Annual Demographia International Housing Affordability Survey (2016: 3rd Quarter)." Christchurch: Demographia, 2017.

Ramsey, Bruce and Roland Neave. *Rain People: the Story of Ocean Falls*, 2nd ed. Kamloops: Wells Gray Tours, 1997.

RBC Economics. Housing Trends and Affordability: *Housing affordability strains intensified in Canada in the second quarter of 2017*. Toronto: RBC Economics Research, 2017. Accessed September 12, 2017.  
[http://www.rbc.com/newsroom/\\_assets-custom/pdf/20170929-ha.pdf](http://www.rbc.com/newsroom/_assets-custom/pdf/20170929-ha.pdf)

Schneider, Tatjana, and Jeremy Till. *Flexible Housing*. Oxford: Architectural Press, 2007.

Settler International. "Housing in Italy". Accessed October 3, 2017. <http://www.settler-international.com/italy/housing.htm>

Shaban, Hamza. "The Switch Employees Kept Crashing into the Glass Walls at Apple's New Headquarters. Here's What They Told 911." *The Washington Post*, March 5, 2018. Accessed March 10, 2018.  
[https://www.washingtonpost.com/news/the-switch/wp/2018/03/05/employees-kept-crashing-into-apples-new-headquarters-glass-walls-heres-what-they-told-911/?noredirect=on&utm\\_term=.adeb2f34c4aa](https://www.washingtonpost.com/news/the-switch/wp/2018/03/05/employees-kept-crashing-into-apples-new-headquarters-glass-walls-heres-what-they-told-911/?noredirect=on&utm_term=.adeb2f34c4aa).

Sienkiewicz, Alexandra. "Here's how condo dwellers are getting creative, hacking their spaces and forcing innovation". *CBC News*, May 26, 2017. Accessed October 3, 2017. <http://www.cbc.ca/news/canada/toronto/condo-hacking-spacestoronto-1.4131413>

Simpson, Deane. *Young-old: Urban Utopias of an Aging Society*. Zürich: Lars Müller Publishers, 2015.

Smart House Condos. "Smart Amenities." *Smart House Condos Toronto - Intriguing, Innovative, Smart living at Queen & University*. Accessed November 17, 2017. <http://smarthousetoronto.com/smartaamenities.html>.

Statistics Canada. "Fertility: Fewer children, older moms" *Canadian Megatrends*. February 2014. Statistics Canada Catalogue no. 11-630-X2014002.

Statistics Canada. "Immigration and ethnocultural diversity: Key results from the 2016 Census" *The Daily*. October 2017. Statistics Canada Catalogue no. no. 11-001-X.

The Okinawa Centenarian Study. "The Study." The Okinawa Centenarian Study: The Research Team. July 7, 2001. Accessed September 12, 2017. <http://www.okicent.org/study.html>.

Weder, Adele. "For Everyone a Garden: The failed dream of Montreal's Habitat '67." *The Walrus*, January

12, 2008. Accessed September 17, 2017. <https://thewalrus.ca/for-everyone-agarden/>.

“(W)ego Installation Open To The Public At Dutch Design Week 2017.” *MVRDV News*. Accessed November 17, 2017. <https://www.mvrdv.nl/en/news/w-ego-installation-opens-to-the-publictomorrow-at-dutch-design-week>.

Whitney, Craig R. “Jeanne Calment, World’s Elder, Dies at 122.” *New York Times*, August 5, 1997. Accessed September 12, 2017. <https://www.nytimes.com/1997/08/05/world/jeanne-calment-world-s-elder-dies-at-122.html>.

United Nations, Department of Economic and Social Affairs, Population Division. *World Population Ageing 2015* (ST/ESA/SER.A/390). New York: United Nations, 2015.

United Nations, Department of Economic and Social Affairs, Population Division. *World Urbanization Prospects: The 2014 Revision* (ST/ESA/SER.A/352). New York: United Nations, 2014.

## APPENDIX



*Fig. 99.1 View of courtyard from hallway*



*Fig. 99.2 View toward courtyard from unit interior*



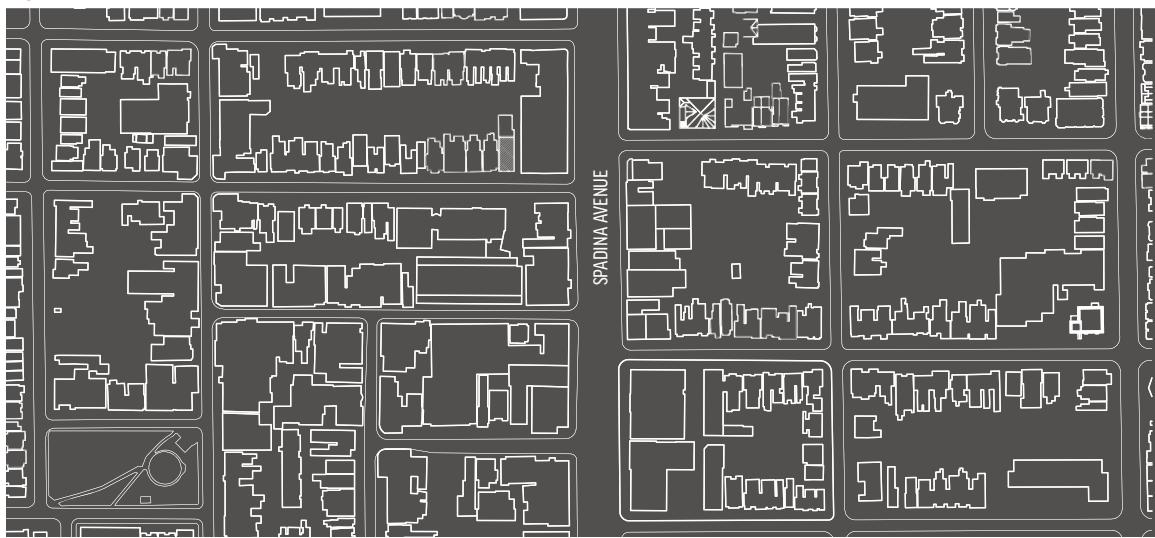
*Fig. 99.3* View of activity room



*Fig. 99.4* View of workshop



*Fig. 99.5* Exterior view



*Fig. 99.6* Site plan



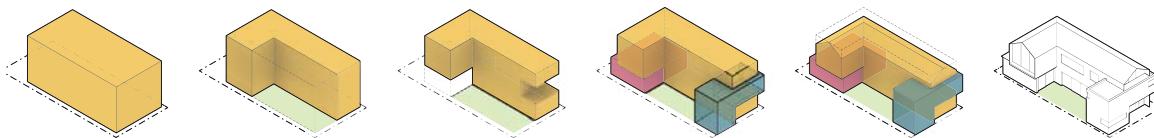
*Fig. 99.7 Site aerial*

This modular, detached house is located in the Kensington Market area of downtown Toronto, bound by College Street and Dundas Street West to the north and south, and Spadina Avenue and Bathurst Street to the east and west. The neighbourhood is known for its uniquely ad-hoc character, marked by the palimpsest of architectural styles and motifs brought by multiple waves of immigration in the 20th century. Currently an underused 9-car parking lot, the site is bound by a laneway to the east, a semi-detached house on the west, and a small vacant building to the north. Along the street to the west are typical Toronto semi-detached houses, three storeys tall with a pitched roof, front porch, and front yard.



*Fig. 99.8 Street elevation*

The predominant typology on this street is the gabled semi-detached house with fenced front yard, and covered front porch.



*Fig. 99.9 Site aerial*

The massing starts with a simple double-wide mass from which a southwest courtyard is carved out. Spaces are carved out of the resulting shape to make way for two additional units, one loft-style bachelor apartment and a one-bedroom barrier-free unit. A pitched roof helps shed water and addresses the local typology.

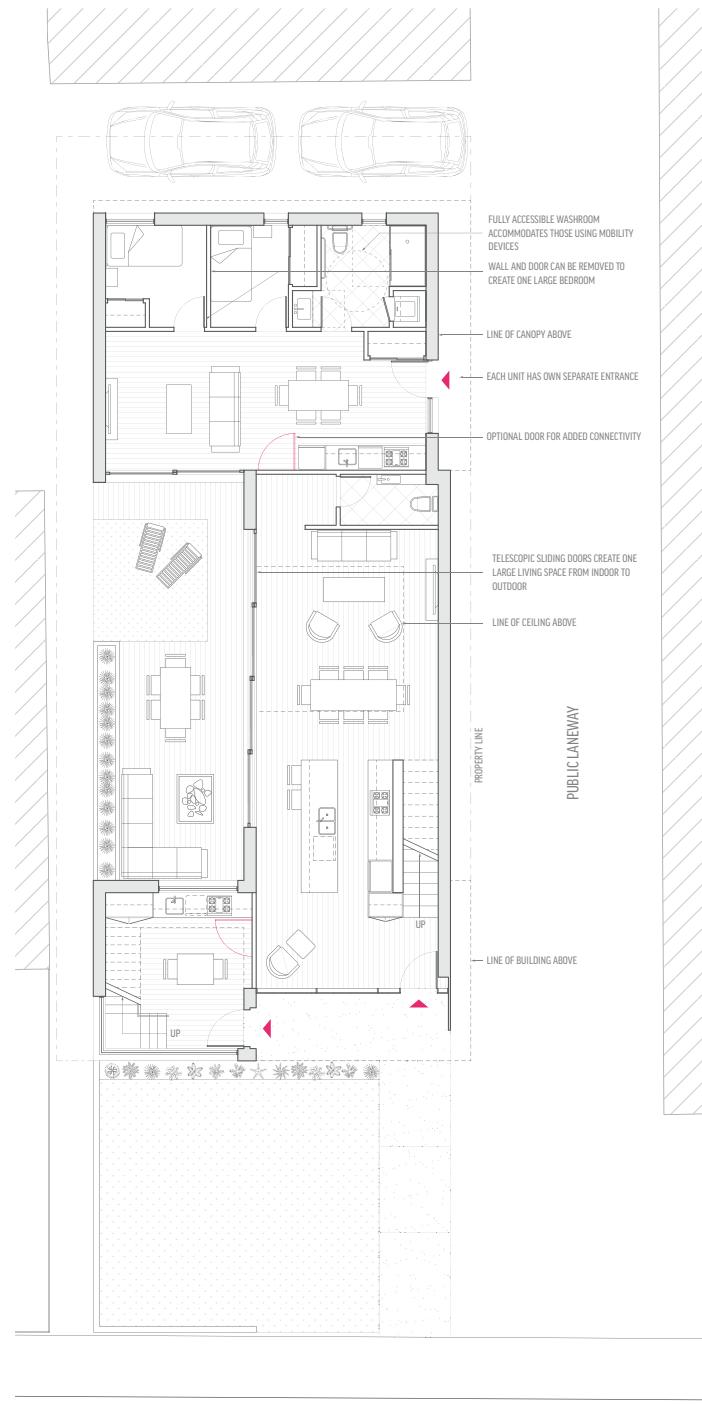
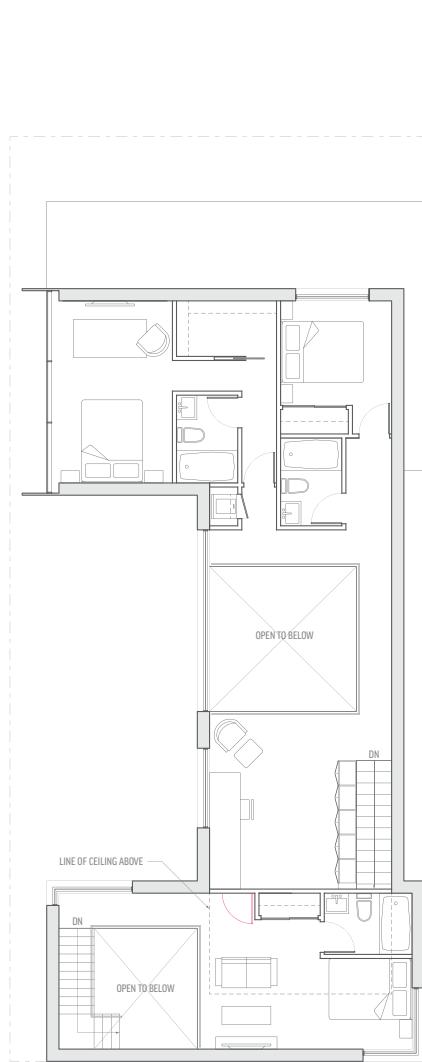


Fig. 99.11 Second floor plan

Fig. 99.10 Ground floor plan

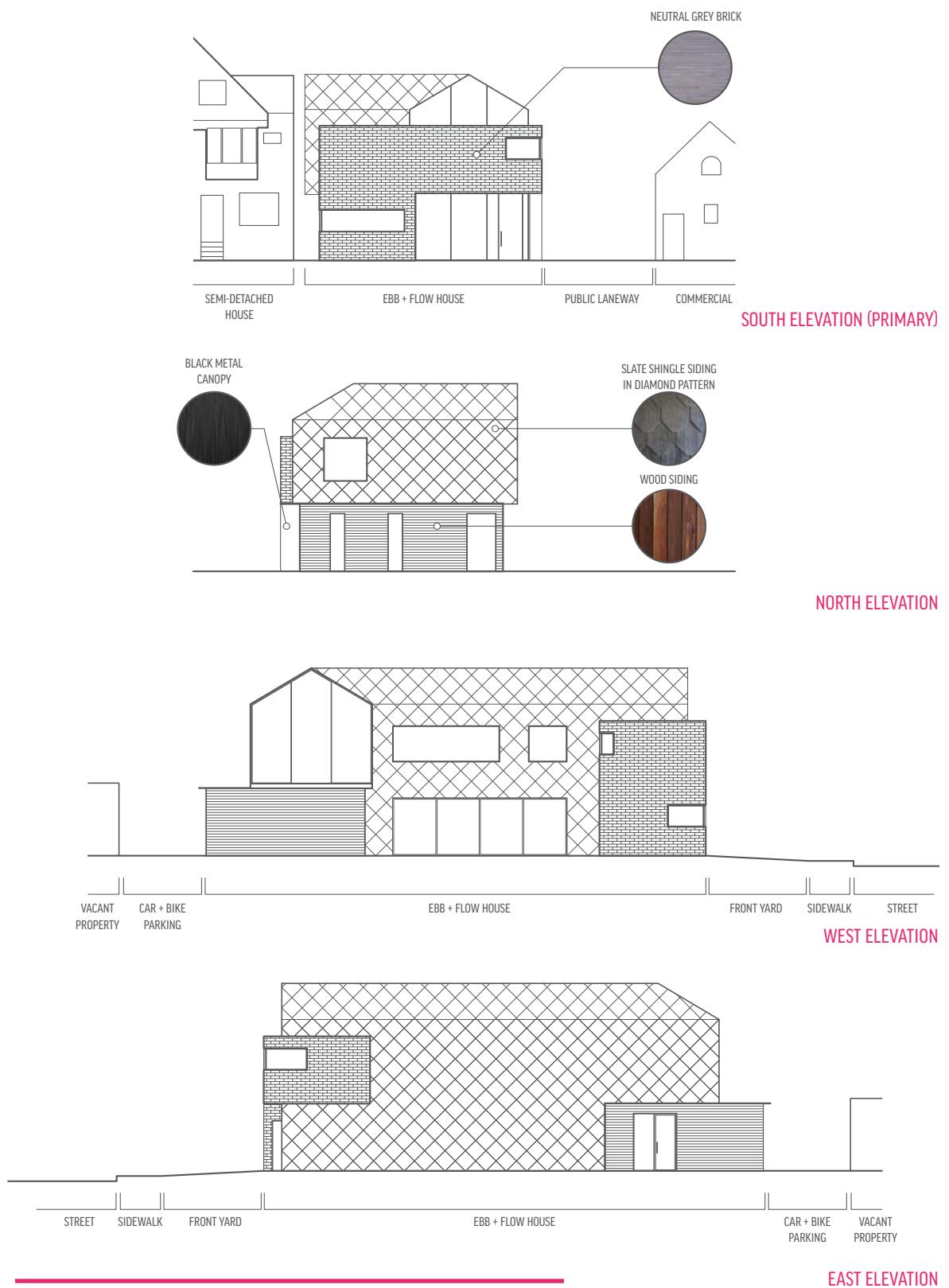
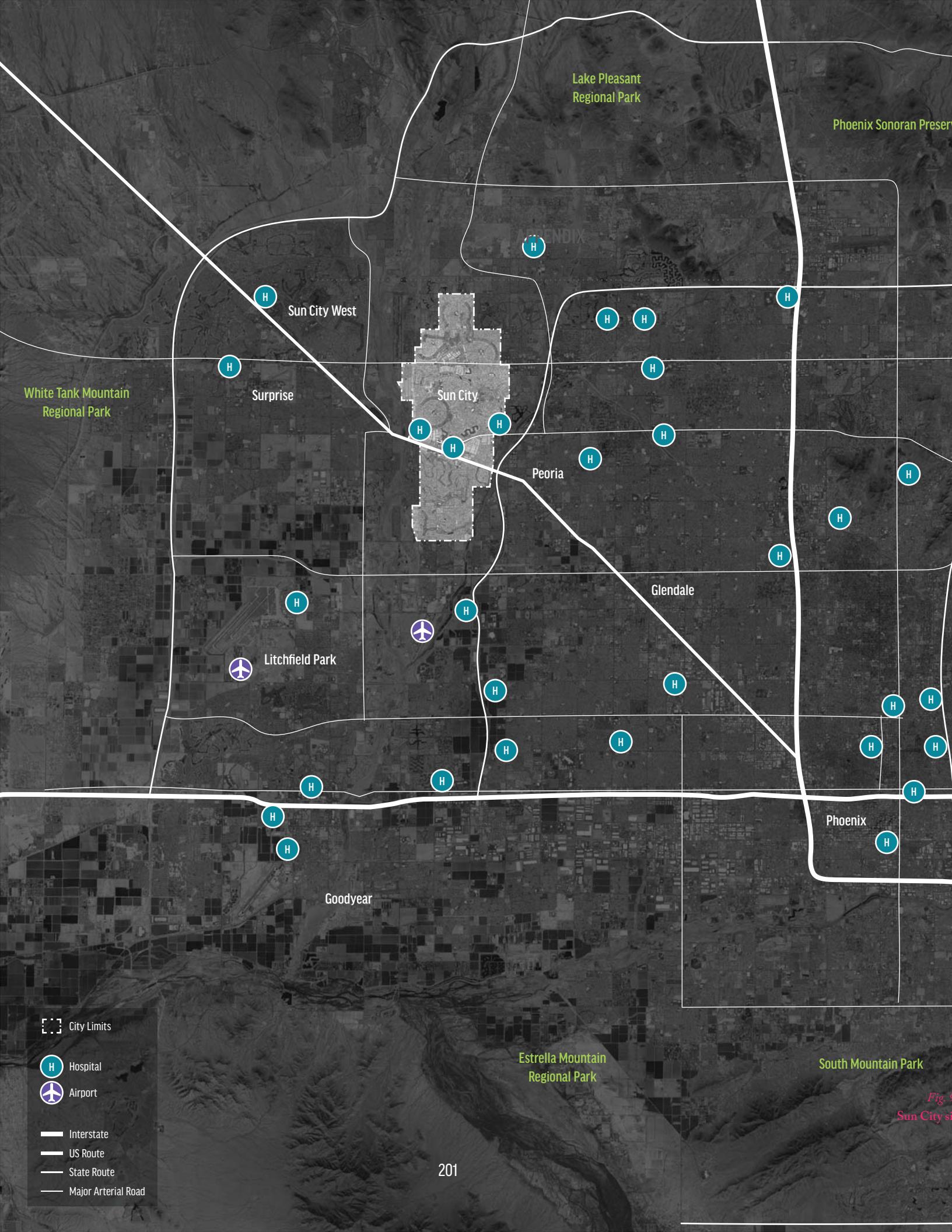
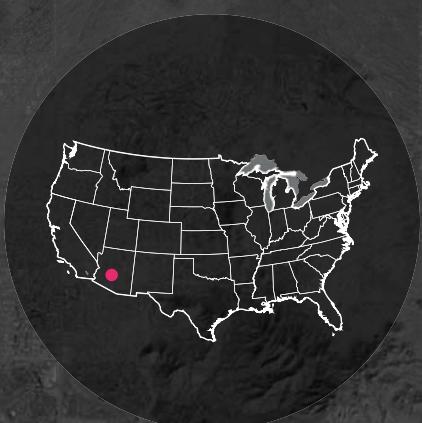


Fig. 99.12 Elevations





McDowell Mountain  
Regional Park

Scottsdale

Tempe



H

H

Mesa

H

H

H

Chandler

202

Gilbert

H

H

H

H



## **HEALTH CENTERS**

- 01 Sun City Health and Rehabilitation Center
- 02 Trillium Specialty Hospital
- 03 Banner Boswell Health Center

## **RECREATION CENTERS**

- 01 Marinette Recreation Center
- 02 Bell Recreation Center
- 03 Sundial Recreation Center
- 04 Duffeeland Dog Park
- 05 Lakeview Recreation Center
- 06 Oakmont Recreation Center
- 07 Fairway Recreation Center
- 08 Sun Bowl Amphitheater
- 09 Mountain View Recreation Center

## **RETAIL**

- 01 Bell Camino Center
- 02 La Ronde Center
- 03 Sundown Plaza
- 04 Grand Avenue Shopping Center
- 05 Sunset Plaza
- 06 Sun Bowl Plaza
- 07 Sun Shadow Square
- 08 Promenade
- 09 Campana Square
- 10 Greenway Terrace
- 11 Thunderbird Plaza Shopping Center
- 12 Plaza de Grande

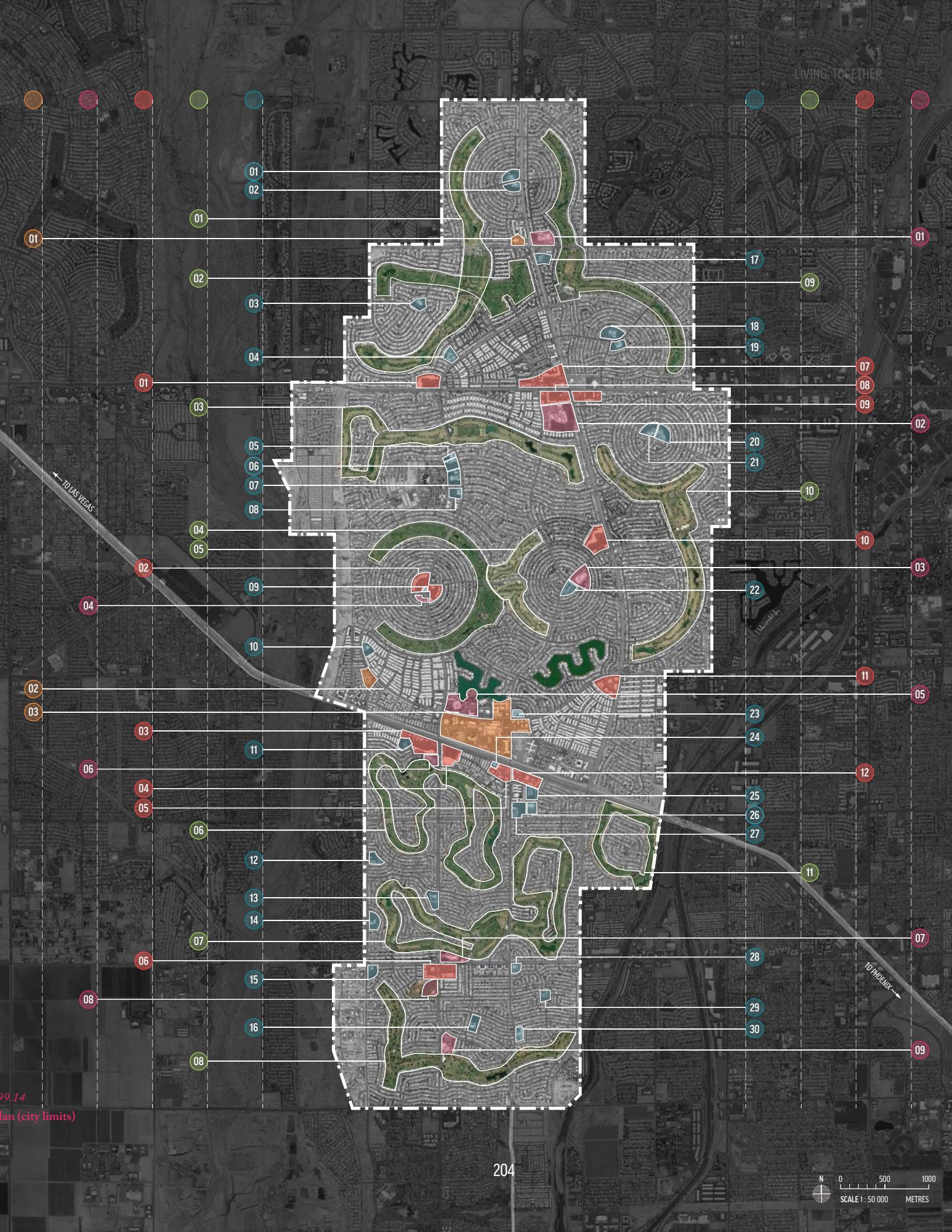
## **GOLF COURSES, COUNTRY CLUBS, PARKS**

- 01 Willowcreek Golf Course
- 02 Willowbrook Golf Course
- 03 Riverview Golf Course
- 04 Lakes West Golf Course
- 05 Lakes East Executive Golf Course
- 06 North Golf Course
- 07 South Golf Course
- 08 Sun City Country Club
- 09 Union Hills Country Club
- 10 Palmbrook Country Club
- 11 Quail Run Golf Course

## **RELIGIOUS CENTERS**

- 01 Willowbrook United Methodist
- 02 Grace Bible Church
- 03 Evangel Church Assemblies of God
- 04 American Lutheran Church
- 05 Faith Presbyterian Church
- 06 The Shepherd's Gate Community Church
- 07 St. Clement of Rome Catholic Church
- 08 Fountain of Life Lutheran Church
- 09 Church of the Nazarene
- 10 First Christian Church
- 11 Church of Jesus Christ of Latter-day Saints
- 12 St. Joachim and St. Anne Parish Sun City
- 13 United Church of Sun City
- 14 Shepherd of the Desert Lutheran
- 15 First Baptist Church Sun City
- 16 Central West District United Church
- 17 Congregational Church of Sun City
- 18 St. Elizabeth Seton Catholic Church
- 19 Sun City Christian Church
- 20 Bellevue Heights Church
- 21 All Saints of the Desert Episcopal Church
- 22 Church of the Palms United Church
- 23 Lakeview United Methodist Church
- 24 West Valley Christian Fellowship
- 25 Unity Spiritual Center
- 26 Temple Beth Shalom
- 27 First Presbyterian Church of Sun City
- 28 St. Christopher's Episcopal Church
- 29 Arizona Korean Presbyterian Church
- 30 Our Savior Evangelical Lutheran Church





**LA RONDE SHOPPING CENTER**

*Appendix*  
 Hard Rock Cosmetic Center  
 Send Me Pack & Ship  
 Mike's Barber Shop  
 Blue Cross Blue Shield of Arizona  
 Budget Truck Rental  
 Sun City Florists, Cards and Gifts

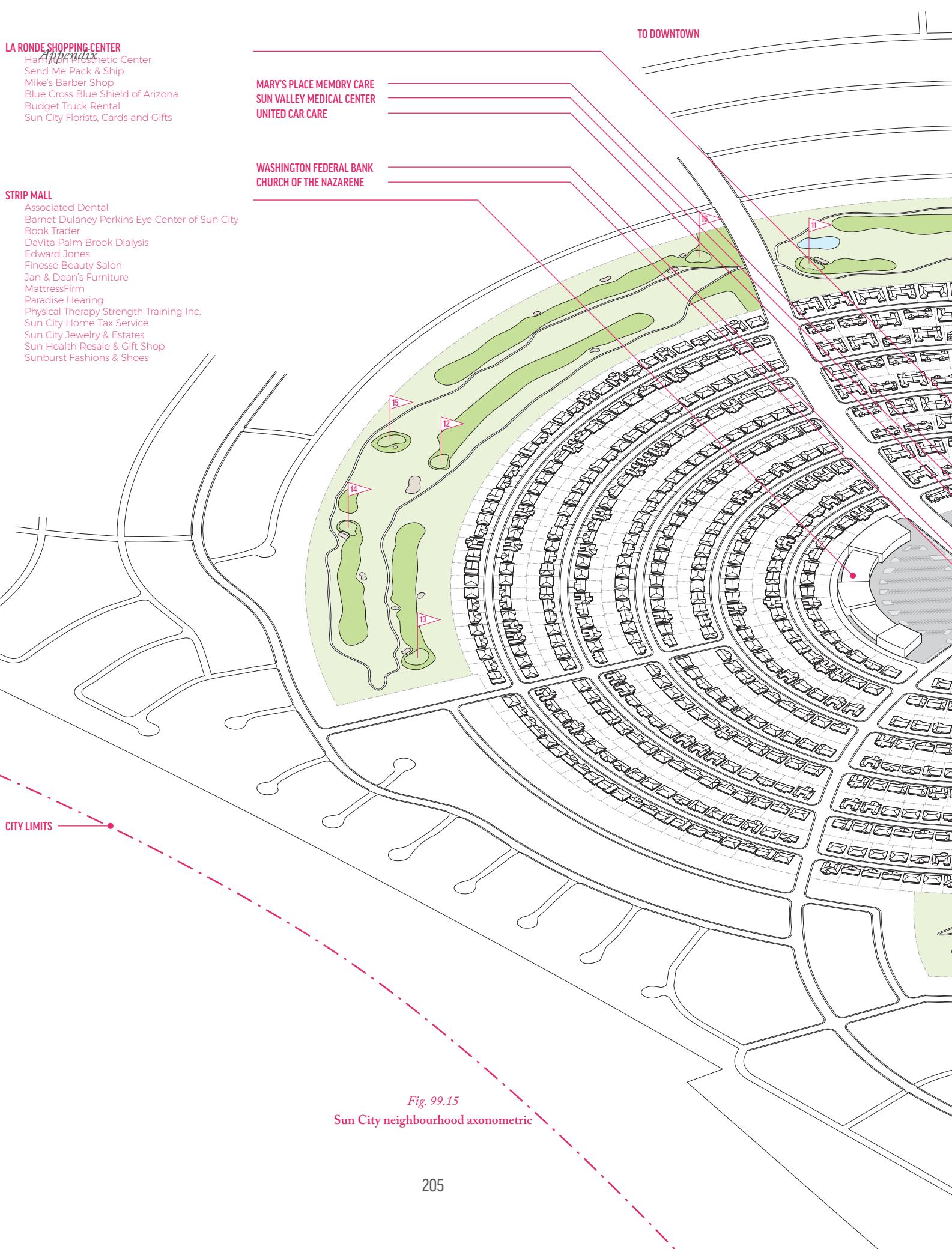
**STRIP MALL**

Associated Dental  
 Barnet Dulaney Perkins Eye Center of Sun City  
 Book Trader  
 DaVita Palm Brook Dialysis  
 Edward Jones  
 Finesse Beauty Salon  
 Jan & Dean's Furniture  
 MattressFirm  
 Paradise Hearing  
 Physical Therapy Strength Training Inc.  
 Sun City Home Tax Service  
 Sun City Jewelry & Estates  
 Sun Health Resale & Gift Shop  
 Sunburst Fashions & Shoes

**MARY'S PLACE MEMORY CARE**  
**SUN VALLEY MEDICAL CENTER**  
**UNITED CAR CARE**

**WASHINGTON FEDERAL BANK**  
**CHURCH OF THE NAZARENE**

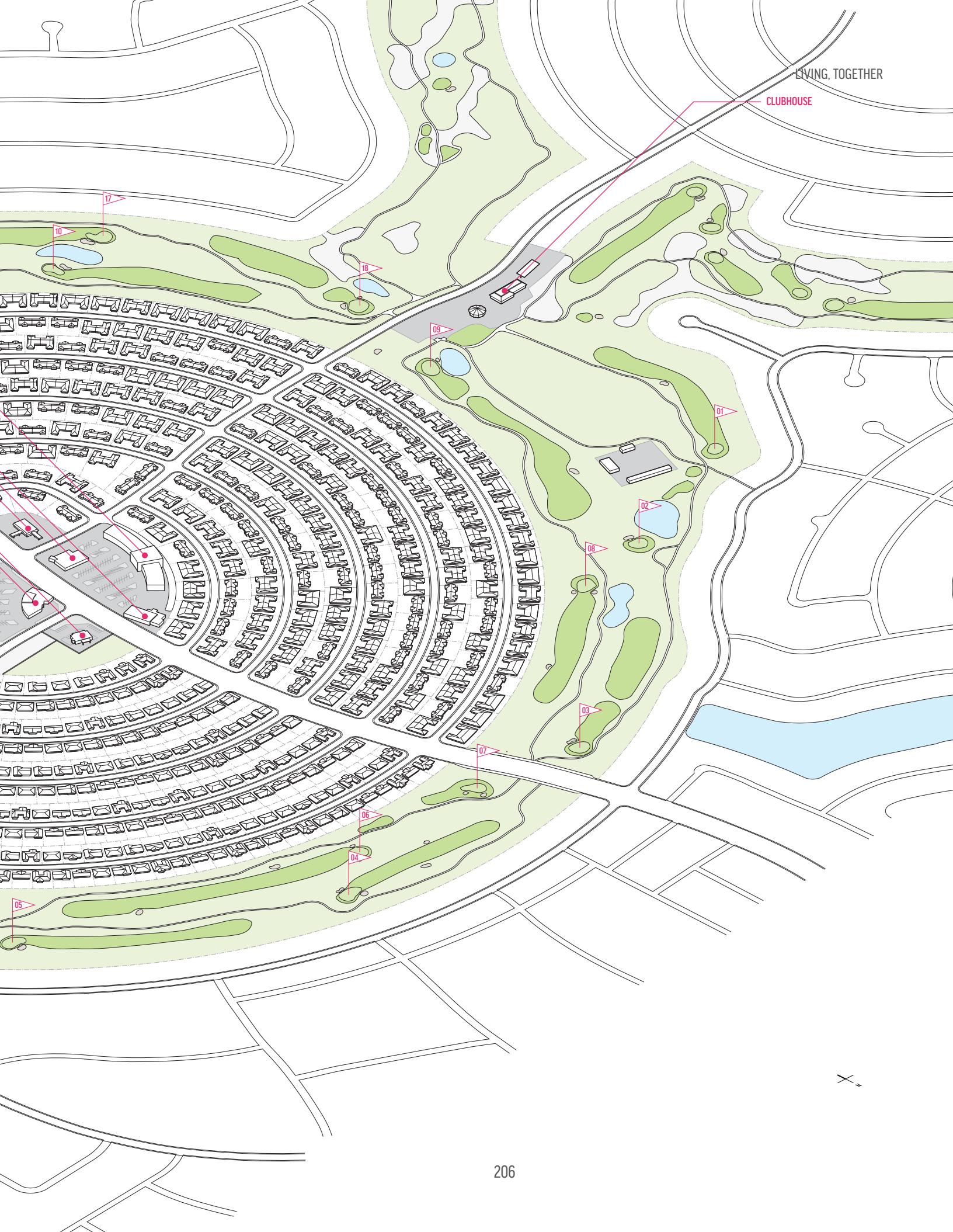
**TO DOWNTOWN**



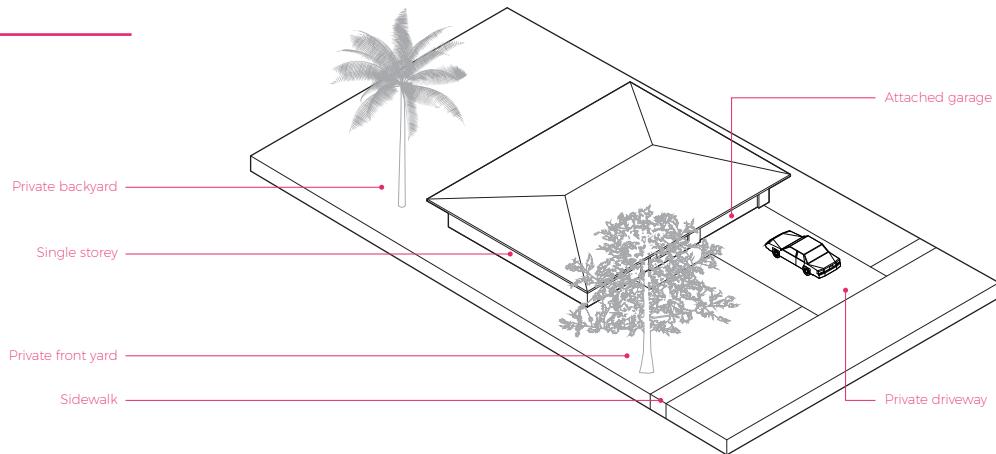
*Fig. 99.15*  
**Sun City neighbourhood axonometric**

LIVING, TOGETHER

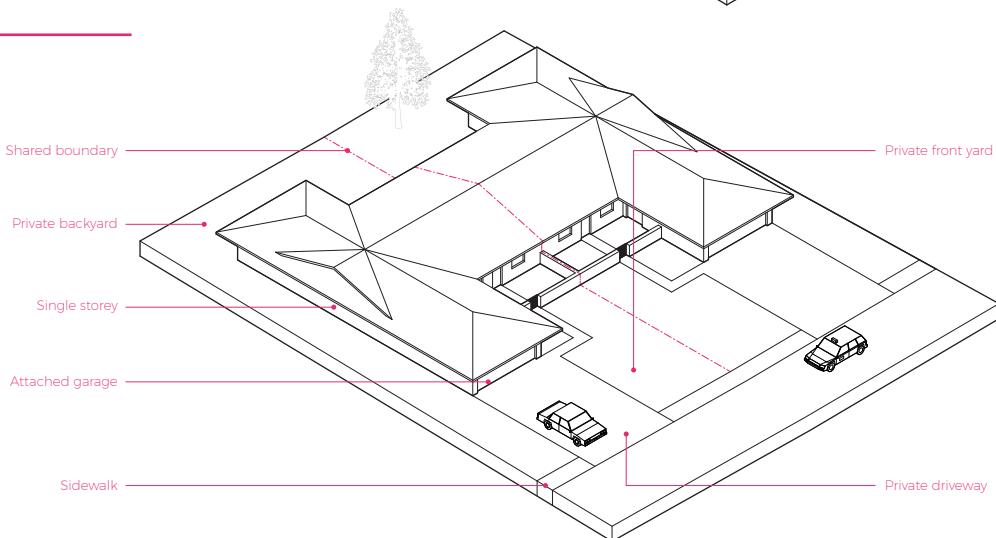
CLUBHOUSE



### SINGLE FAMILY DETACHED HOUSE



### SEMI-DETACHED HOUSE



### RANCH HOUSE

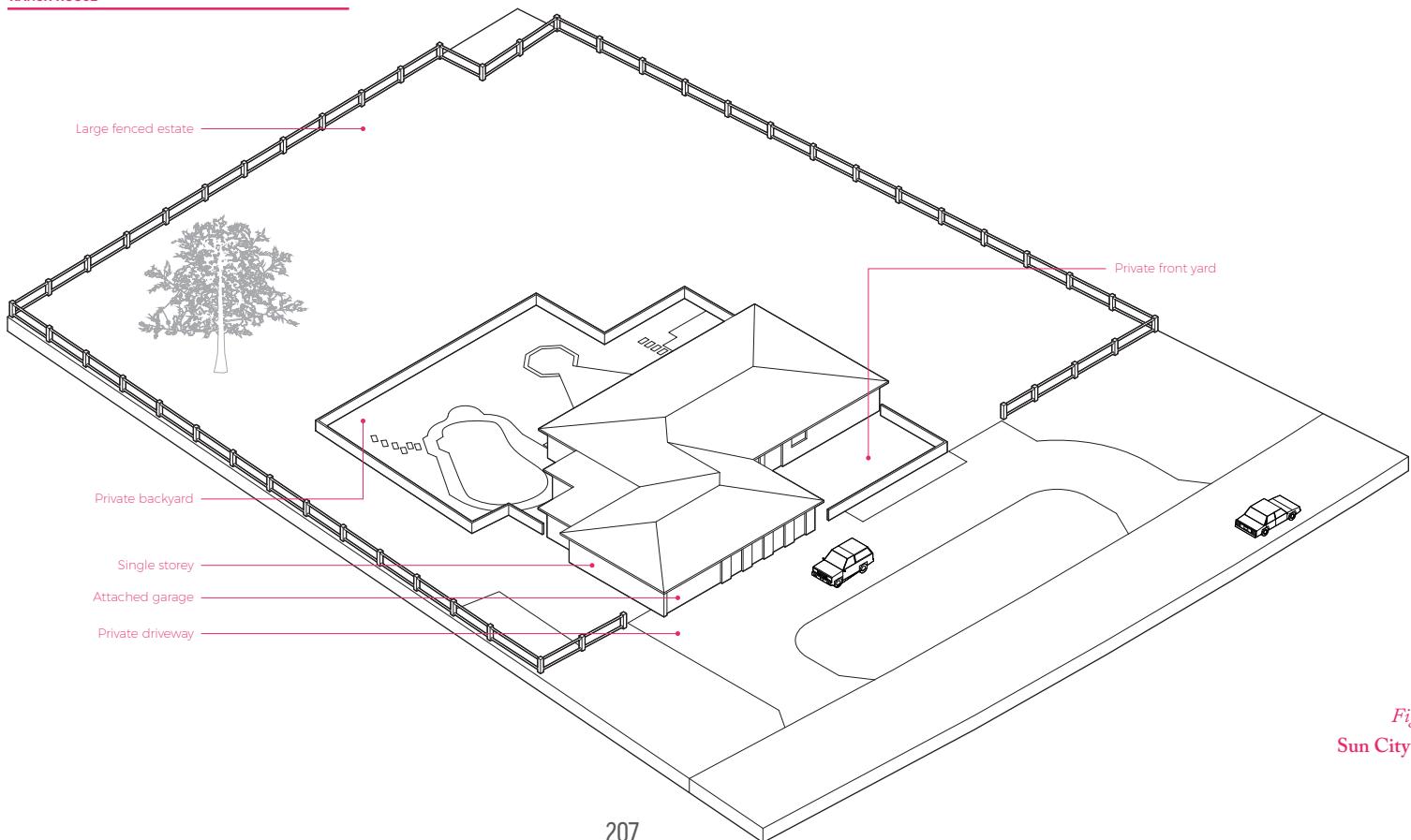
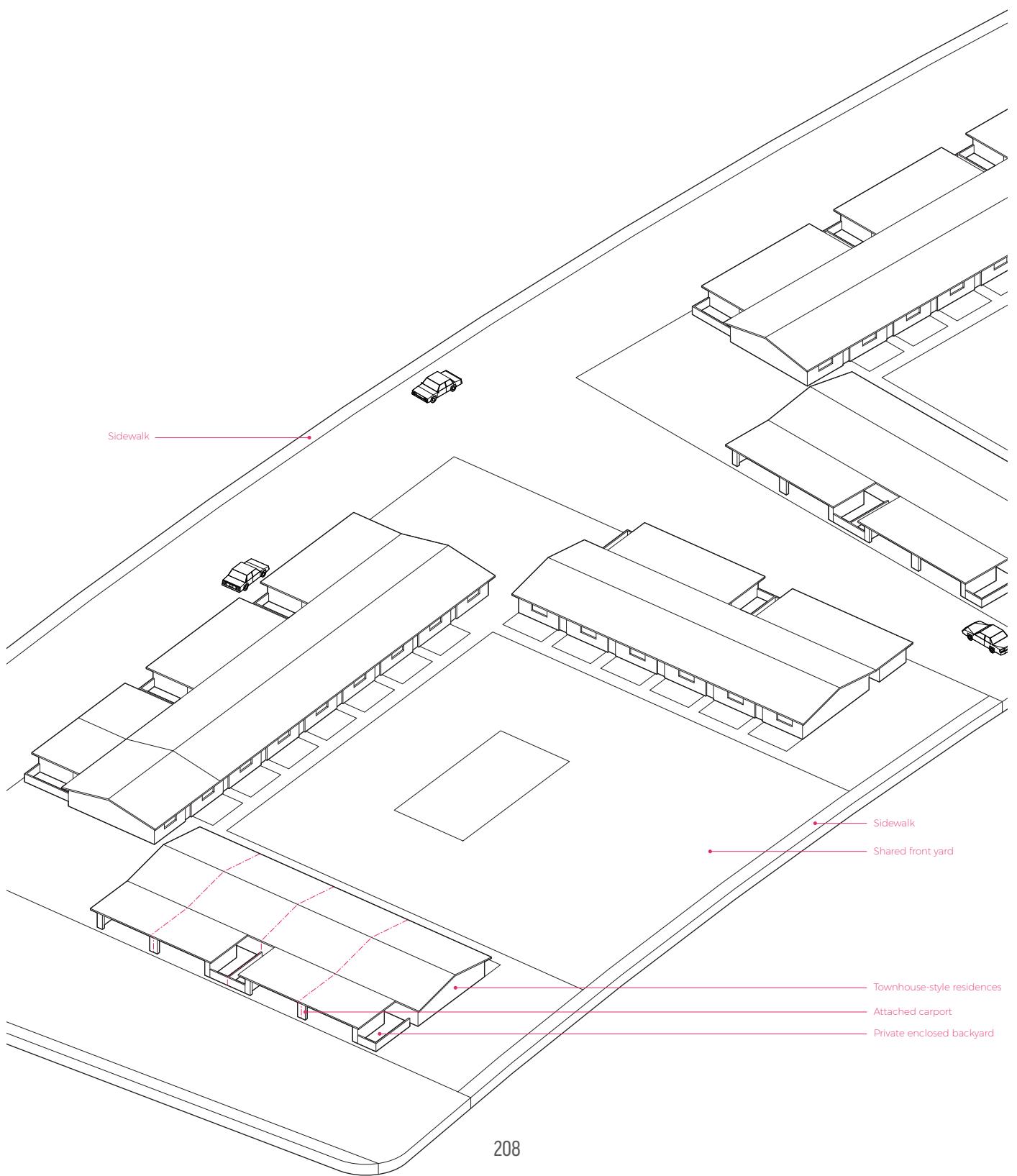


Fig. 9  
Sun City houses



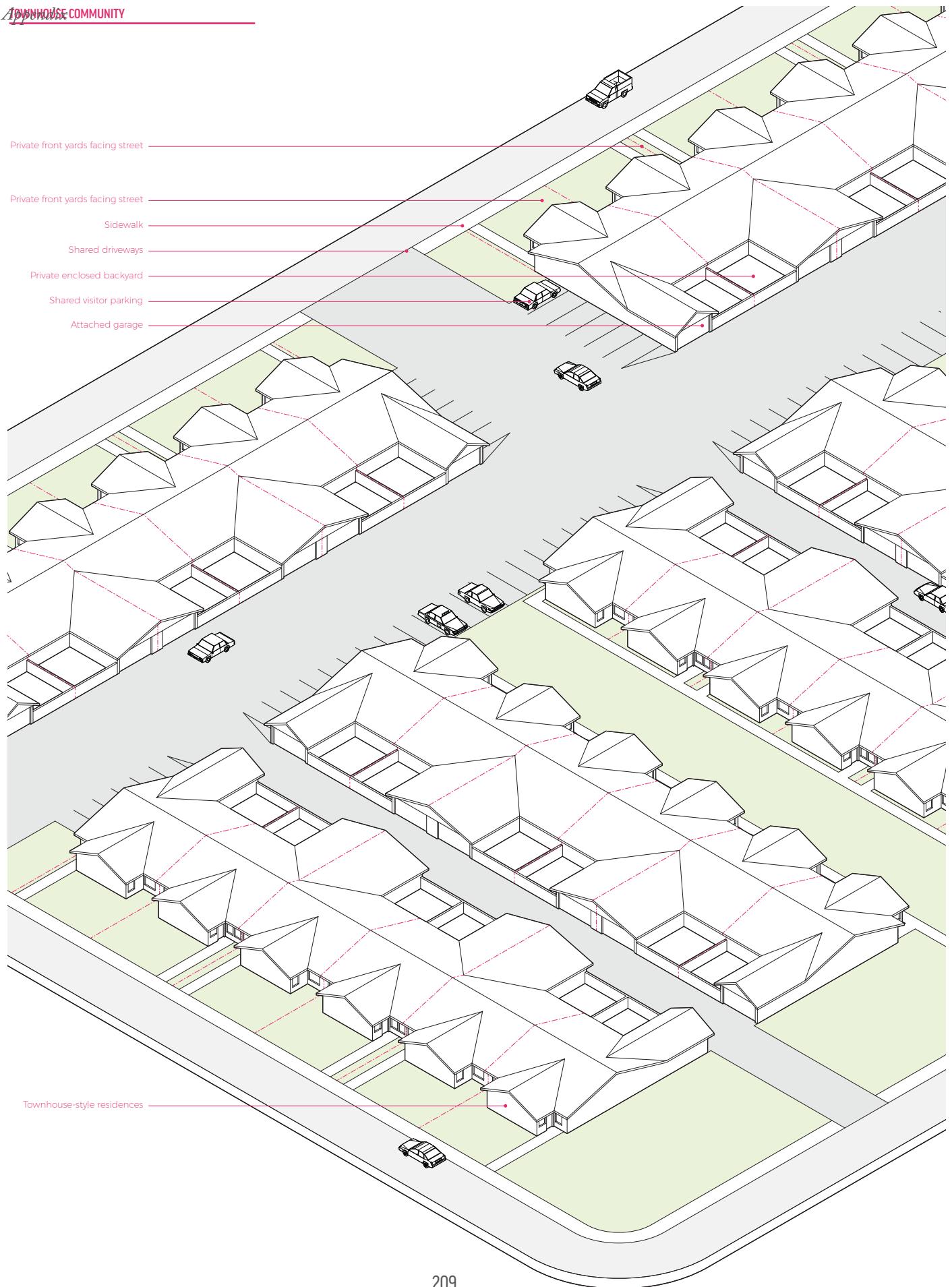
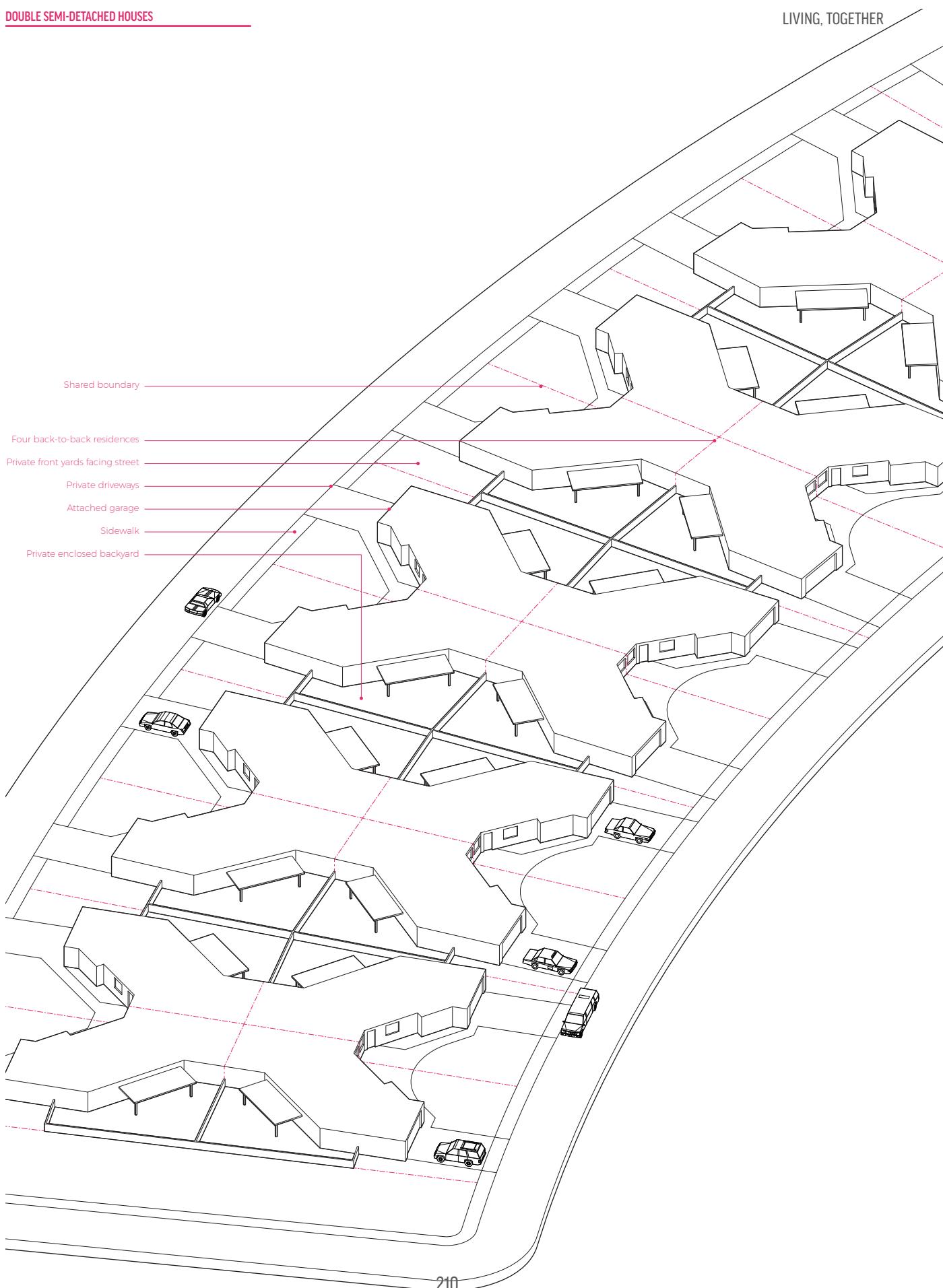
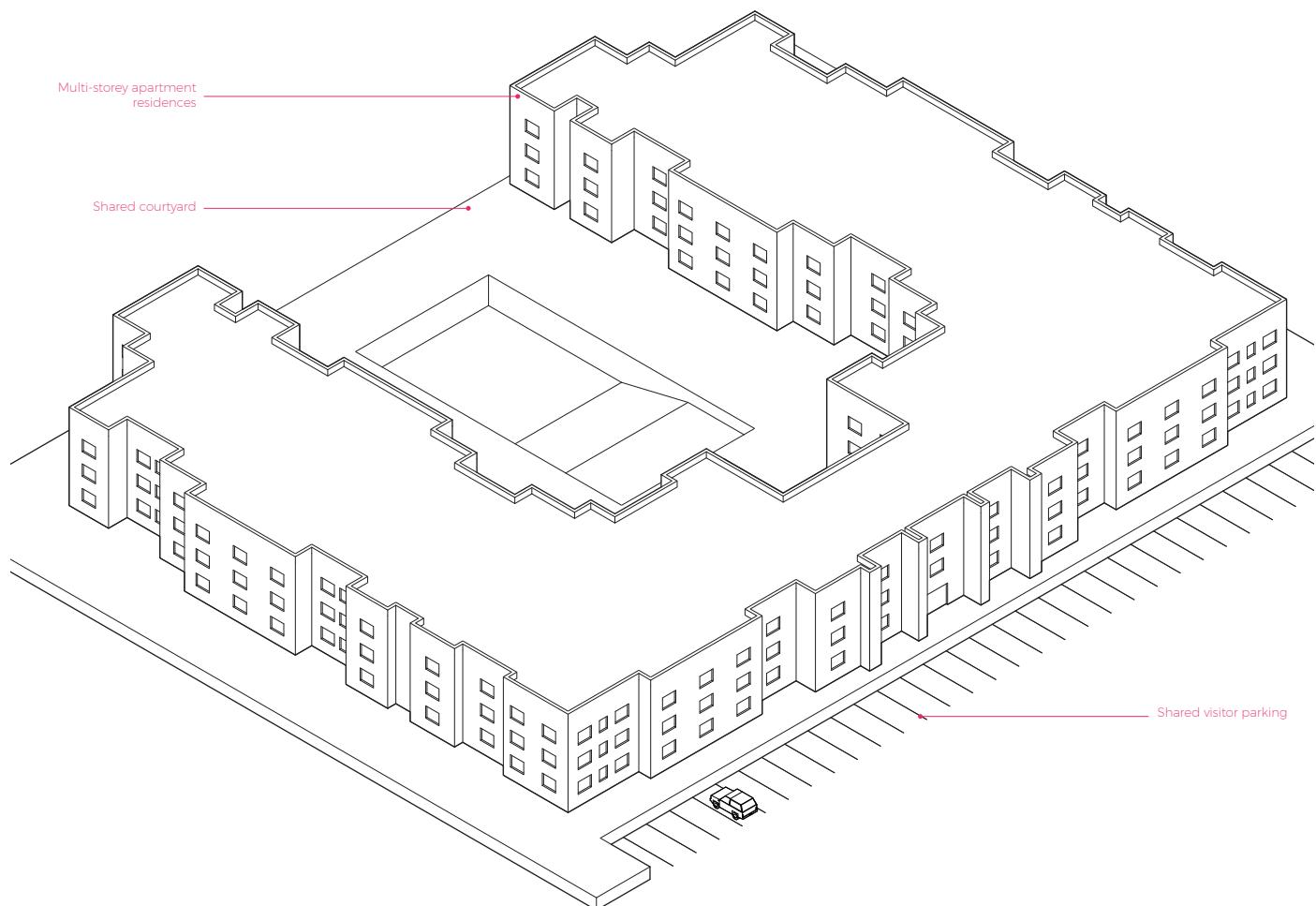


Fig. 9  
Sun City housing





*Fig. 99.18*  
**Sun City housing types**



*Appendix*