

SOCIAL ACTS AT HEIGHT

LIBERATED FROM THE SOCIAL ISOLATION IN HIGH RISE BUILDINGS



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Keywords

High-rise buildings, Social Isolation, Loneliness, Health, Connection, Interaction, Residents

2780 words of body texts

“Despite the stunning panoramic views and the convenience of modern amenities, there are times when I feel like I'm living in a bubble, disconnected from the world below.” – Maru Kim, 4 March 2023.

Introduction

This research focuses on the social isolation experienced by inner-city residents in high-rise buildings within densely populated cities. My fascination with this subject arises from various sources, in which I read about an increase of high-rise residents struggling with the feeling of being in an isolating bubble, with little to no social contacts within their residential tower.¹ These people lack a sense of connection to their living environment. Furthermore, high-rise buildings have long been associated with poor mental health of residents, and various studies have shown that high rise apartment buildings pose social and psychological challenges both at the urban and individual levels.²

The high-rise as an urban housing type emerged in the United States around 1880, facilitated by the development of steel structures and the invention of escalators and elevators.³ This vertical housing type quickly spread worldwide. In the 20th century, high-rise buildings became highly popular, becoming a distinctive element of the urban architectural landscape. Due to rising land prices and urban population growth, high-rise buildings were considered a solution to housing challenges. This housing type allowed a significant number of people to live in a limited space and benefit from the economic and social advantages of the city.^{4,5} This has resulted in the fact that even today in 2023, high-rise towers are still being built to accommodate urban population growth.

Nevertheless, as I delved deeper into the living quality and personal experiences of high-rise residents, I discovered that this housing typology also has negative aspects. It turns out that a significant group of people experiences social isolation in high-rise buildings, and this is a contemporary urban issue. Although social isolation is often associated with loneliness, these two definitions are not identical.⁶ Social isolation is a situation in which individuals become isolated, with absolutely no social contact with family, friends, acquaintances, and neighbours. Loneliness, on the other hand is a universal human emotion, representing a complex and multifaceted concept that can be described as the subjective experience of social isolation.⁷ However, there is a strong correlation between both concepts, where the subjective feeling of isolation can result from objective isolation.⁸ Moreover, both loneliness and social isolation can be influenced by psychological issues and various societal and hereditary factors.⁹ However, this research mainly focuses on the architectural and spatial aspects and factors in high-rise buildings that influence social isolation.

¹ Kim, 'High-Rise Living'.

² Korte and Huisman, 'Sources of Assistance among Residents of a Dutch High-rise Development', p.751.

³ Lepik, *Skyscrapers*, p. 5.

⁴ Al-Kodmany, *The vertical city*, p. vii.

⁵ Bairoch, *Cities and Economic Development*, p. 137–138.

⁶ Innoveere, 'Wat is Sociaal Isolement?'

⁷ Cacioppo and William, *Loneliness*.

⁸ Coumans, 'Sociale isolatie', p. 8.

⁹ Coco and Özcan, 'Gezondheidsmonitor', p. 2–7.

Problem statement

It is evident that large cities need to prepare for urban housing, considering the increasing population growth and limited space.¹⁰ As a result, tall vertical buildings have become a necessity in urban development. While high-rise buildings provide an answer to economic housing challenges, this type of urban housing also comes with social problems. The horizontal street level, where vibrant community life has always taken place and where individuals have had the opportunity to appreciate the urban space, is not experienced at height.¹¹ High-rise residents lose social contact with the ground and feel disconnected from urban society.¹² Even architects and developers acknowledge this problem and struggle with the challenge of integrating high-rise buildings into the vitality of street-level life.¹³ The thick shoe-sole, which is the ground floor of a residential tower, presents difficulties in establishing a vibrant streetscape, making living in the high sky more anonymous among residents.

Furthermore, a considerable number of high-rise residents experience loneliness within apartment buildings and find themselves in social isolation. Various studies have shown that social isolation occurs in all age groups, but that elderly and young adults between the ages of 16 and 35 in high-rise buildings in particular experience it more often.¹⁴ High-rise residents report the absence of a social network. Meaningful relationships among residents are lacking, and there is a dearth of social interactions due to the high density in high-rise buildings. For example, there are insufficient spaces to promote social interactions, meetings, and communal amenities. Residents may encounter each other in elevators, stairwells, or corridors, but they are not actively encouraged to form social relationships, resulting in a lack of community within the tower.¹⁵ Many residents live in fear and in relative isolation, they cannot rely on the support of their neighbours, leading to a reduced sense of belonging to their living environment.^{16,17} This creates a private atmosphere where residents tend to live more as individuals, contributing to the segregation among local residents.

Additionally, urban residents who are experiencing loneliness and social isolation may face serious consequences. Humans are inherently social beings.¹⁸ It is natural to build human relationships, but the absence of social relationships can have adverse effects on the mental health. Loneliness can lead to feelings of anxiety and depression, which in turn can result in an increased risk of cardiovascular diseases.¹⁹ Loneliness also heightens the risk of dementia and can negatively affect an individual's perception during social interactions. Research has indicated that children growing up in high-rise buildings tend to spend most of their time playing alone, which limits their social interactions and physical well-being.²⁰ As a result, children who were raised in high-rises developed more social problems and lower levels of motor ability compared to children who were raised in single-family homes.

¹⁰ Koelemaij, 'Nieuwe hoogbouw'.

¹¹ Certeau de, *The Practice of Everyday Life*. 1, p. 91–93.

¹² Allemeersch, 'The Inside and Outside of High-Rise Social Housing', p. 109.

¹³ 'Hoogbouw is de ideale oplossing in de strijd tegen woningnood. Of toch niet?'

¹⁴ M. Chile, M. Black, and Neill, 'Experience and Expression of Social Isolation by Inner-City High-Rise Residents', p. 161.

¹⁵ Nguyen e.a., 'Where do People Interact in High-Rise Apartment Buildings?'

¹⁶ Turner, Wigfield, and Conversation, 'It's Time to Recognise How Harmful High-Rise Living Can Be for Residents'.

¹⁷ 'Ook na coronacrisis nog sociale isolatie | RIVM'.

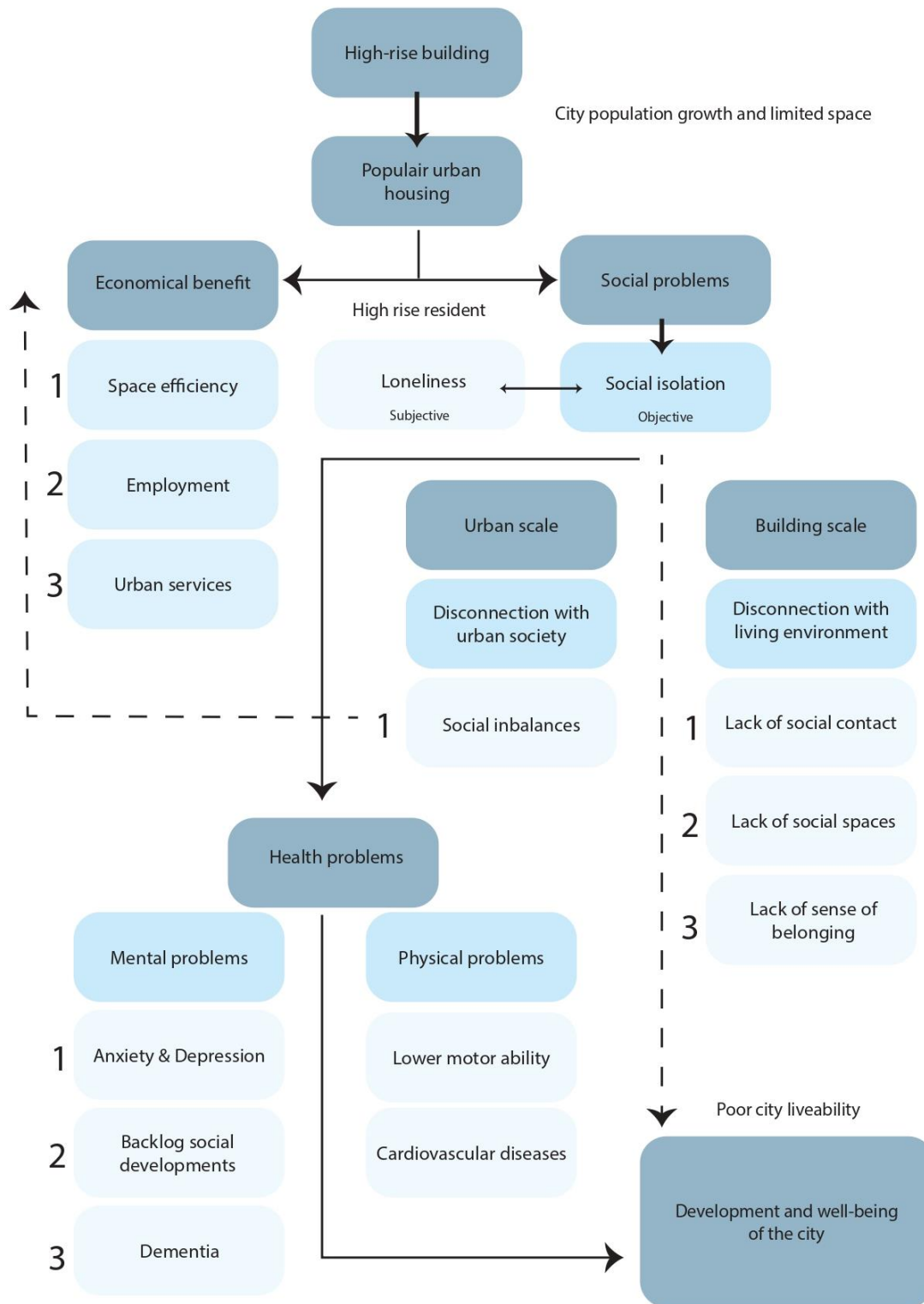
¹⁸ House, Landis, and Umberson, 'Social Relationships and Health' p. 541- 543.

¹⁹ 'Eenzaamheid | Oorzaken en gevolgen | Volksgezondheid en Zorg'.

²⁰ Gifford, 'The Consequences of Living in High-Rise Buildings', p. 8.

Lastly, the mental and physical health of urban residents also reflects the liveability of a neighbourhood or city. Consequently, social isolation is not only a personal problem affecting a small group of high-rise residents; it also negatively affects the development and the well-being of the future city.

Diagram problem



Research questions

This research mainly focuses on the architectural aspects present in high-rise buildings that could potentially influence the social isolation of the inner-city residents. The aim of this study is to mitigate social isolation in high-rise buildings, enabling high-rise inhabitants to reside in a better, healthier, and safer living environment within the densely populated city. Therefore, a main question has been formulated, which is supported by several sub-questions.

What are the spatial aspects and factors that influence social isolation in high-rise buildings?

- Sub-Question 1: Why do some residents feel lonely and socially isolated in high-rise buildings?
- Sub-Question 2: What is the current social situation in Dutch high-rise buildings, and how do inner-city residents socially interact with one another?
- Sub-Question 3: What are the psychological and physical ways to overcome social isolation in a residential environment?
- Sub-Question 4: Which spatial qualities foster social community and interaction among residents in low- and mid-rise buildings, and what can high-rise buildings learn from this?

Theoretical framework

This research primarily focuses on human behaviour, how high-rise residents utilize spaces, and how they perceive things within high-rise buildings. The selected theoretical concepts serve as the foundation for the research structure which are: Spatial qualities, Design affects the human behaviour and Social support.

Spatial qualities ²¹

The triad theory of Vitruvius indicates that the spatial quality can be divided into three different dimensions: future value (*firmitas*), utility value (*utilitas*), and experiential value (*venustas*), which together lead to a good architectural design, contributing to the sense of belonging in a living environment.

Future value (*firmitas*): This means that a space should be designed with an eye toward the future needs and changes of society. Therefore, a space should be flexible and adaptable to desired new functions, technology, and demographic patterns.

Utility value (*utilitas*): This focuses on the functionality of a space and how well it meets the needs of and uses of individuals. It tests the accessibility, usability, and suitability of a space for specific activities.

Experiential value (*venustas*): This pertains to the aesthetic and emotional value of a space. It mainly involves the subjective experiences and perceptions that people have within a space or environment in which they find themselves. It's mostly about the beauty, comfort, inspiration of a space, and whether the space provide satisfaction to the individual's experience.

The spatial quality of a residential environment is important for several reasons. It assesses whether the physical environment meets human perceptions and behaviours.²² When the spatial quality of all three dimensions in high-rise buildings is ensured, a sense of belonging will also exist. It fosters a strong relationship between users and their surroundings, leading to better utilization of spaces, higher satisfaction, and ultimately a sense of belonging.²³ This factor contributes to transforming a space into a place with specific behavioural characteristics for individuals. Certain spaces in high-rise buildings can meet certain qualities to encourage residents to use other areas within high-rise buildings more frequently than only their own homes. This provides more opportunities for social interaction within high-rise buildings, preventing loneliness and social isolation.

²¹ van der Voordt, 'Quality of design and usability', p. 2–13.

²² Zotic and Alexandru, 'Debate on the Presence/Absence of the Vitruvian Triad in the Current Architecture and Urban Design', p. 130.

²³ Yazdanpour and Moztarzadeh, 'Sense of Belonging in Research Building', p.5 63–64.

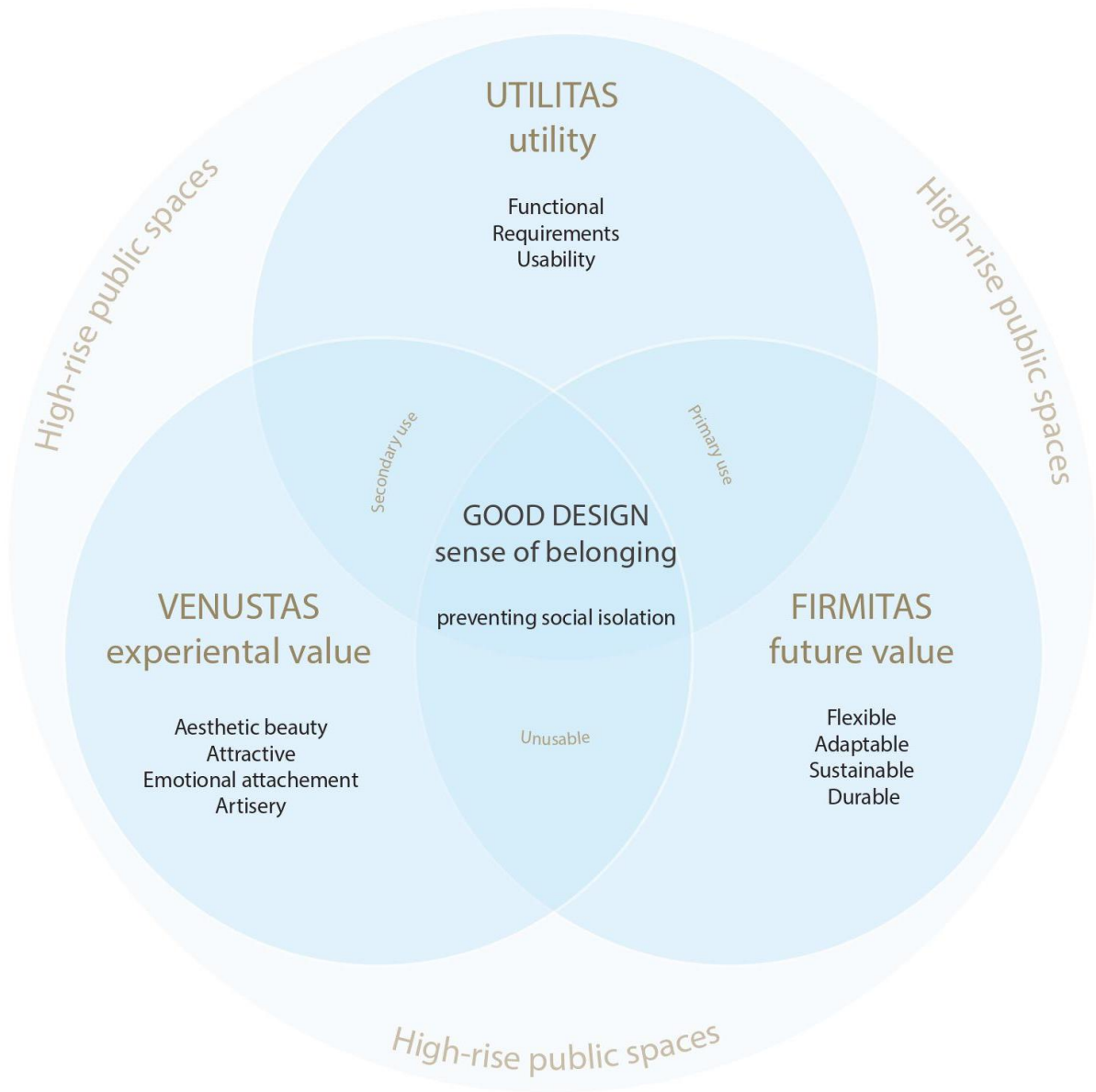


Figure 2. The triad theory of Vitruvius about spatial qualities, applied with the theme of social isolation in high-rise building, made by author, 2023

Design affects the human behaviour

"We shape our buildings, and afterwards our buildings shape us." – Winston Churchill, 1924

This theory suggests that our physical environment, including buildings and architecture, is not only created by humans but also influences the human behaviour, attitudes, and interactions between users and their surroundings.²⁴ The statement illustrates a mutual interaction in which both elements continually influence each other.

"We shape our buildings."

People design and shape the built environment in which they actively participate. They construct buildings and spaces that meet their needs and desires.²⁵ During this process, various aspects and priorities, such as culture and functions, are considered and applied. Therefore, our buildings are constructed based on human decisions.

"Our buildings shape us."

This suggests that buildings influence people. The physical environment guides individuals and affects their behaviour, emotions, and interactions.²⁶ The buildings we create ultimately determine how people should feel, move, and engage in social relationships. For example, a well-designed public space can encourage its visitors to engage in social interaction, while a poorly designed space can discourage social interaction and even create social isolation.²⁷

In summary, this theory emphasizes that architects and designers must be aware of what they create in the built environment. Everything which is formed in the built environment should relate to the well-being and behaviour of the users.

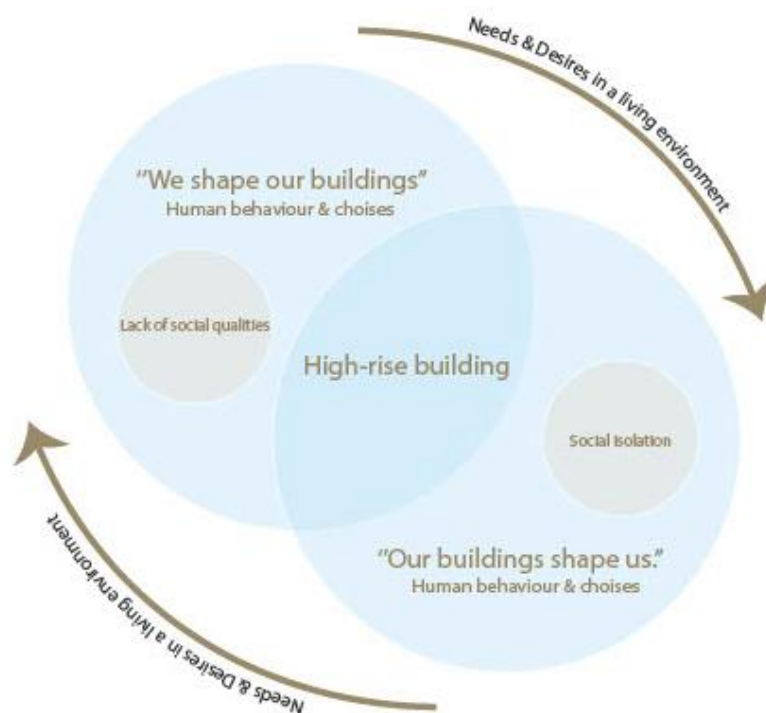


Figure 3. The mutual interaction of "We shape our buildings and afterwards our buildings shape us." , made by author, 2023

²⁴ Brand, *How Buildings Learn*.

²⁵ Kostourou, 'We shape our buildings and then they shape us'.

²⁶ Feng, Nikolic, and Ewart, 'Understanding How the Adaptations of Building Spaces Shape or Are Shaped by Human Behaviour in Disrupted Use Scenarios', p. 4–5.

²⁷ Shah and Kesan, 'How Architecture Regulates', p. 8–10.

Social support and social isolation

James S. House's theory emphasizes that strong and supportive social relationships among individuals can contribute to a person's health and well-being.²⁸ Social connectivity acts as a buffer to reduce the health effects of stressful situations. Social connectivity can be ensured in various ways, both directly and indirectly, including emotional support, instrumental support, informational support, and appraisal support.²⁹ Furthermore, the extent to which people are engaged in a social network also determines the individual's health. The more someone is involved in a social community, the better that person's health and well-being are.³⁰ It is crucial for individuals to establish social relationships within their living environment and for local communities to emerge.

Furthermore, the social capital is part of the living environment, referring to strong social networks and support within a community.³¹ It promotes residents' resilience and well-being. The social capital also helps preventing social isolation, loneliness, and making communities adaptable and capable of responding to adverse situations. Maurice Hartevelde's theory specifies three conditions that public spaces must meet to ensure resilient communities in a living environment, which could promote meaningful relationships between high-rise residents:³²

1. Community Networks- This involves individuals who can be part of a community where strong social bonds exist among these people. Public spaces are where people share activities and knowledge.
2. Place Attachment- The emotional and psychological connection that users have with a space. There is a sense of belonging and identity. Public space should be a place where people can meet to share experiences and developments.
3. Community Infrastructure- Providing the necessary services, facilities, and amenities in public space. This makes it easier for people to use the space in a certain way.

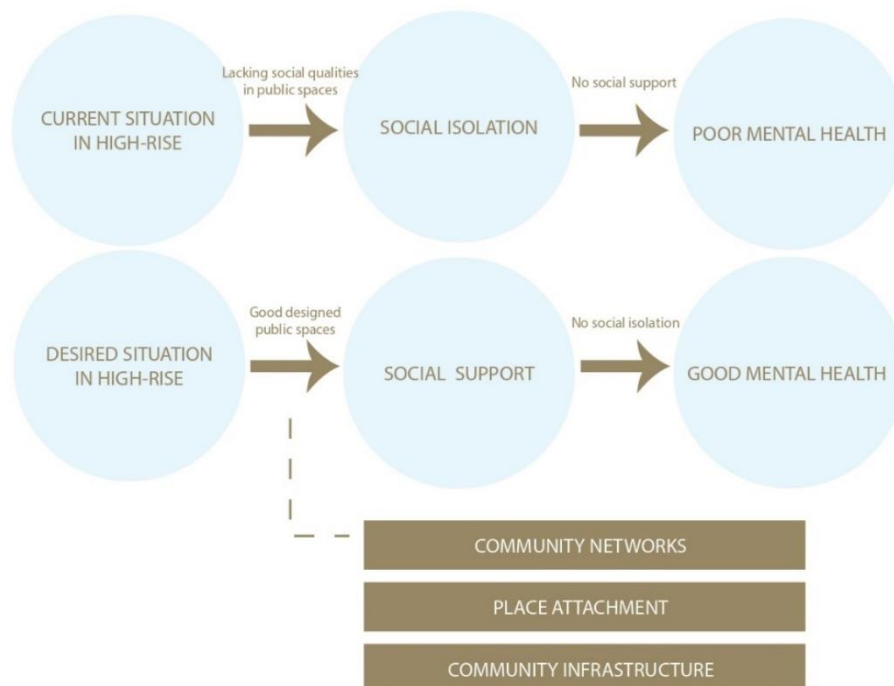


Figure 4. The social situation in residential area can be positive or negative for the mental health. , made by author, 2023

²⁸ House, Landis, and Umberson, 'Social Relationships and Health', p. 541–543.

²⁹ Barrera and Ainlay, 'The Structure of Social Support', p.138–141.

³⁰ Umberson and Montez, 'Social Relationships and Health'.

³¹ Berkman and Kawachi, *Social Epidemiology*, p. 176–184.

³² Hartevelde and Asadollahi Asl Zarkhah, 'Public Spaces for Community Resilience'.

Methods and Methodology

To investigate the spatial aspects and factors that influence social isolation in high-rise buildings, various research methods are used to answer the different sub-questions.

Quantitative Research Methods:

1. Survey: A questionnaire consisting of closed-ended questions to explore the subjective social experience in high-rise buildings. It provides insights into how residents rate their living environment in terms of social connectivity and to what extent they feel socially engaged in their living environment. The survey also identifies the desires and shortcomings in high-rise living according to the user's experience.
2. Data Analysis: Statistics and figures related to loneliness and social isolation in high-rise buildings, derived from previous ethnographic research related to high-rise residents.
3. Literature Review: Existing studies on social interactions and isolation in high-rise buildings to comprehend why it is challenging to ensure the social aspect in high-rise living and what spatial qualities are needed to reduce social isolation. Additionally, other studies are examined concerning the causes, consequences, and prevention possibilities of social isolation.

Qualitative Research Methods:

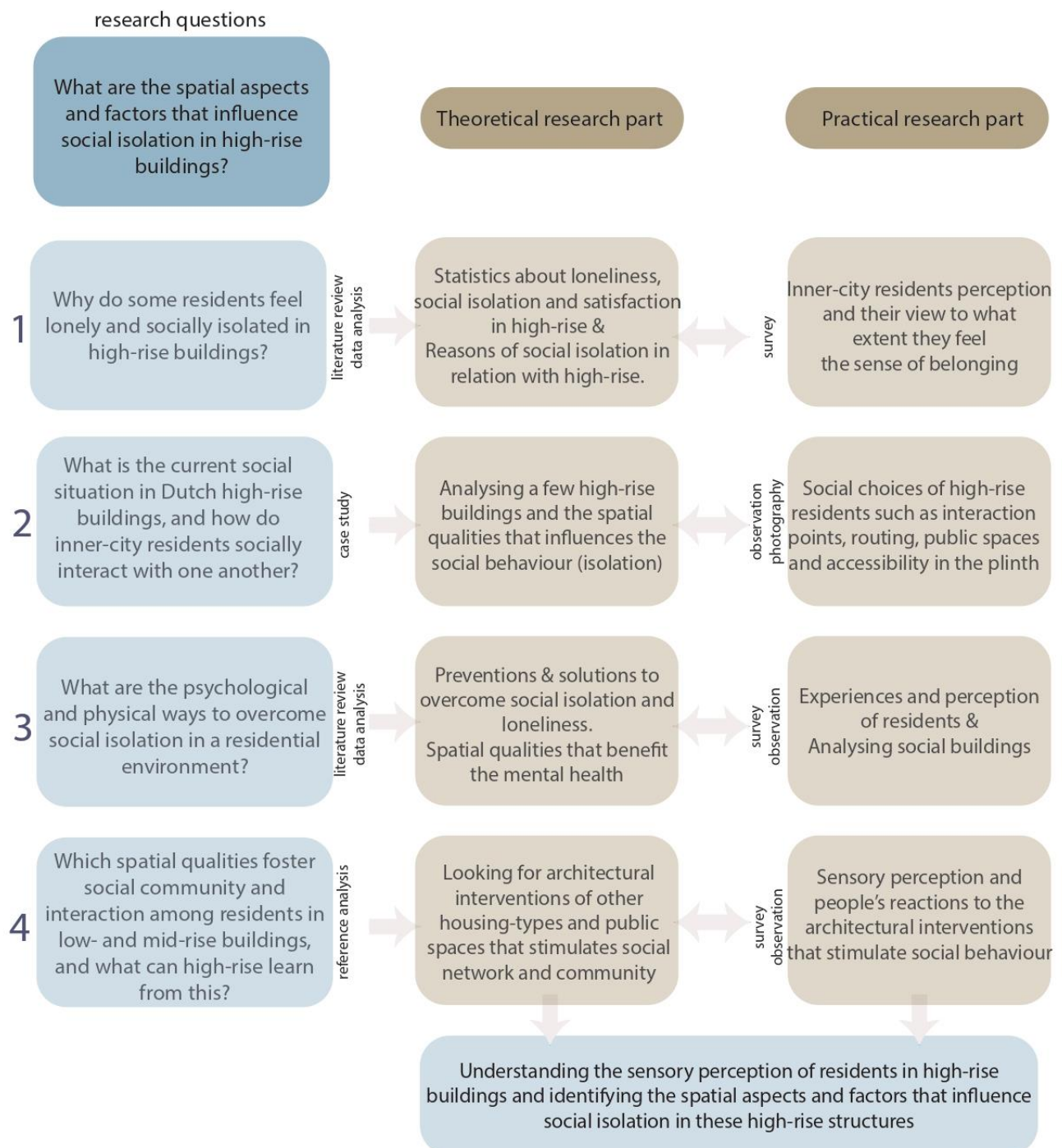
1. Observational Research: Observing residents in different residential towers to gain insight into the social structures of individuals and groups. This method helps to understand how high-rise residents make choices regarding their social behaviour, movements, and engagement in high-rise living.
2. Photography: Capturing and analysing the public layouts and spaces that impact social isolation in high-rise buildings.
3. Case Studies: Analysing various high-rise buildings and environments through a SWOT analysis to assess public layouts and spatial aspects for potential strengths, weaknesses, opportunities, and threats affecting social isolation or social interaction.³³

The chosen research methods are selected to verify whether the theoretical framework (literature and data analysis) aligns with the practical framework (observation, survey, and photography) with the aim of identifying the spatial factors influencing the social isolation or anti-social behaviour. The research begins with a theoretical framework in which various literature studies and data are examined. This theoretical framework provides insight into which public spaces and amenities influence social isolation and how it can be prevented. In the practical framework, various residential towers are analysed, ranging from 'good' residential towers where optimal social interaction has been considered to 'poor' residential towers where social isolation is prevalent. Various spaces and amenities within high-rises are then assessed for strong and weak factors affecting social behaviour. Furthermore, the desires and subjective experiences of high-rise residents are considered to determine the necessary spatial quality in high-rise living.

³³ Sarsby, *SWOT Analysis*, p. 7–13.

Finally, other social and public spaces outside of high-rise buildings are also analysed. This provides insight into how people and groups are encouraged to engage in social interaction directly or indirectly and which spatial factors are relevant, potentially applicable to high-rise living.

Methods diagram



Research relevance

High-rise buildings are developing daily in the built environment and has become an integral part of the urban landscape. The future city is set to transform into a vertical city due to the need for densification.³⁴ However, this does not mean that we should leave high-rise buildings unchanged in their current form. Various studies have already shown that high-rise buildings limit the social cohesion and that the living environment in high-rises also affects the loneliness and social isolation experienced by residents.^{35 36} These problems, in turn, negatively affect the population's health.³⁷ Therefore, social isolation is an actual urban issue that requires serious attention.

Despite the fact that social isolation is influenced by numerous factors, including the living environment, no specific research has yet been conducted on the spatial factors and qualities in high-rise buildings that actually influence loneliness and social isolation. Architectural interventions are necessary to encourage social interaction and a sense of belonging in high-rises to reduce social isolation. It is crucial that the built environment responds by providing solutions and exploring new opportunities for vertical buildings. The metropolis must be dynamic and liveable, with the well-being and health of its residents in mind.

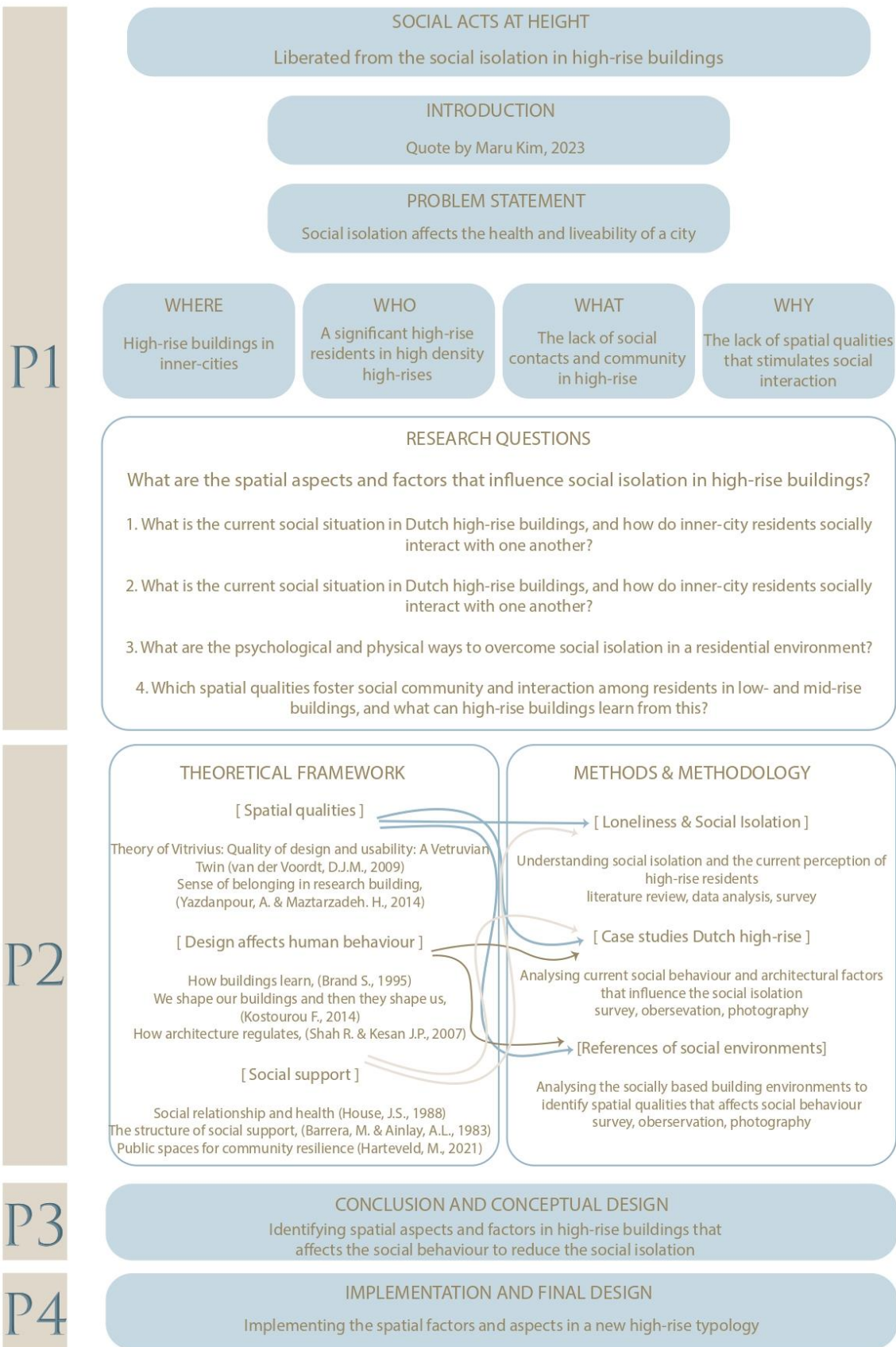
³⁴ van Bergeijk, 'Hoogbouw', p. 10.

³⁵ Gifford, 'The Consequences of Living in High-Rise Buildings'.

³⁶³⁶ M. Chile, M. Black, and Neill, 'Experience and Expression of Social Isolation by Inner-City High-Rise Residents'.

³⁷ Larcombe e.a., 'High-Rise Apartments and Urban Mental Health—Historical and Contemporary Views', p. 4–7.

Research Diagram



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The study emphasizes the importance of the social ties and interactions in city designs. It gives three architectural interventions to design social connectivity in residential high-rises. The three strategies are exo-spatial design, solar carving and bridging. These points can be part of the spatial quality that is needed to reduce social isolation in high-rise buildings.

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The study promotes the intervention strategies for social behaviour. It gives some recommendations and promising strategies how to design that benefits the health and wellbeing of individuals.

Huang, Shu-Chun Lucy. 'A study of outdoor interactional spaces in high-rise housing'. *Landscape and Urban Planning* 78, nr. 3 (9 November 2006): 193–204. <https://doi.org/10.1016/j.landurbplan.2005.07.008>.

The study focuses on public outdoor spaces in high rises and what the factors and designs strategies are to make these places attractive. By observing several residents it was clear that some spaces promotes the social interaction more than other spaces. The factors, that is found in this study can also be used to identify the factors that influence the social problem in high rises.

Jackson, James. 'This Scientist Is Using VR to Understand Why Skyscrapers Stress People Out'. *Vice* (blog), 6. December 2017. <https://www.vice.com/en/article/43nnvb/this-scientist-is-using-vr-to-understand-why-skyscrapers-stress-people-out-stressweek2017>.

The study shows why inner-city people mostly got stressed perceiving high vertical towers and why high-rise buildings mostly got associated with poor mental health.

Kearns, Ade, Elise Whitley, Carol Tannahill, and Anne Ellaway. "‘LONESOME TOWN’? IS LONELINESS ASSOCIATED WITH THE RESIDENTIAL ENVIRONMENT, INCLUDING HOUSING AND NEIGHBORHOOD FACTORS?" *Journal of Community Psychology* 43, nr. 7 (September 2015): 849–67. <https://doi.org/10.1002/jcop.21711>.

The article shows that loneliness is influenced by the living environment. It concludes that a living environment with good amenities and spatial qualities makes people feel less lonely. It shows the factors that architects should include these factors.

Kearns, Ade, Elise Whitley, Phil Mason, and Lyndal Bond. "‘Living the High Life’? Residential, Social and Psychosocial Outcomes for High-Rise Occupants in a Deprived Context'. *Housing Studies* 27, nr. 1 (January 2012): 97–126. <https://doi.org/10.1080/02673037.2012.632080>.

This study explores the consequences of living in high-rise buildings in comparison to other dwelling types in deprived areas of Glasgow. The findings reveal that high-rise living is associated with worse residential outcomes, particularly concerning noise and security issues. This conclusion can be considered as an factor for poor social relationships and causing loneliness and social isolation.

Kim, Joongsub, and Rachel Kaplan. 'Physical and Psychological Factors in Sense of Community: New Urbanist Kentlands and Nearby Orchard Village'. *Environment and behaviour* 36, nr. 3 (2004): 313–40. <https://doi.org/10.1177/0013916503260236>.

It shows the different factors creating the sense of community in an urban area and reflects on the loneliness and social isolation.

Kootstra, J. 'Socially-Oriented High-Rise Design in the Netherlands', 2020. <https://frw.studenttheses.ub.rug.nl/3371/>.

The article gives some case studies of high rise buildings in the Netherlands and shows the architectural interventions that provide the social behaviour in these high-rises.

Machielse, A. 'PROFILES OF SOCIALLY ISOLATED ELDERLY: A TYPOLOGY WITH INTERVENTION IMPLICATIONS'. *Innovation in Aging* 1, nr. suppl_1 (1 July 2017): 1089–1089. <https://doi.org/10.1093/geroni/igx004.3996>.

The paper focuses on the concerning trend of increasing social isolation among older adults that live alone. Despite many architectural developments in recent years, studies revealed their limited effectiveness. The paper address the issue and a typology based on profiles of socially isolated older adults, derived from an qualitative study in the Netherlands.

Mazumder, Robin. 'The Downside of Building Up: An Exploration into the Psychological and Physiological Impacts of Exposure to High-Rise Buildings'. Doctoral Thesis, University of Waterloo, 2020. <https://uwspace.uwaterloo.ca/handle/10012/16504>.

Research about physiological and psychological effects of high-rise buildings in Central London, both in real and virtual 360-degree video environments, as cities densify and construct more tall structures. Participants were exposed to low-rise and high-rise buildings, with their activity monitored and their feelings assessed through the Self-Assessment.

Modi, Suruchi. 'Improving the Social Sustainability of High-Rises'. CTBUH Research Papers, 2014. <https://global.ctbuh.org/resources/papers/download/828-improving-the-social-sustainability-of-high-rises.pdf>.

The article shows how high-rise buildings have developed during the years on sustainable matters and what the challenges and solutions were to achieve designing good social spaces. This article is helpful to identify spatial factors that limits the social behaviour in high-rises with a high rated social isolation.

Nast, Condé. 'The Psychological Tricks Designers Use to Make Cities Happier Places'. *Wired UK*. Consulted 6 November 2023. <https://www.wired.co.uk/article/city-design-architecture-happiness-wellbeing>.

The article reveals psychological tricks that urban designers usually use to make urban environment attractive. It focuses on the urban housing and urban spaces.

Nguyen, Hoang Long Truong, Binh Duong Trong, and Huan Giang Ngoc. 'Proposed strategies for designing sustainable high-rise apartment buildings in Ho Chi Minh City responding to critical urban issues'. *High-Rise Construction* 2017 33, nr. E3S Web Conf. (6 March 2018): 14. <https://doi.org/10.1051/e3sconf/20183303001>.

It shows the strategies how to design sustainable high-rise apartments buildings on social matters. However the case study is based on high-rise buildings in Ho Chi Minh City which is very different from Dutch high-rises. Still I can be useful for this research, to gain knowledge.

Ridwana, Rifan, Budi Prayitno, and Adi Utomo Hatmoko. 'The Relationship Between Spatial Configuration and Social Interaction in High-Rise Flats: A Case Study On The Jatinegara Barat in Jakarta.' SHS Web of Conferences 41 (2018): 07003. <https://doi.org/10.1051/shsconf/20184107003>.

The construction of high-rise apartment buildings to minimize urban slums in Indonesia still results in behavioural issues related to space utilization for residents due to changes in spatial configuration between high-rise dwellings. De study helps to identify which factors are related to the social behaviour problems in high-rise.

Scholl, Wolfgang. 'The Socio-Emotional Basis of Human Interaction and Communication: How We Construct Our Social World'. Social Science Information 52, nr. 1 (March 2013): 3–33. <https://doi.org/10.1177/0539018412466607>.

A study that contributes to the human social behaviour and shows how people take actions to create a social network with their environment.

Thompson, Sian. 'Exploring the Nature of Third Places and Local Social Ties in High-Density Areas: The Case of a Large Mixed-Use Complex'. Urban Policy and Research, 14 Augustus 2018, 1–15. <https://doi.org/10.1080/08111146.2018.1502660>.

The study explain why mixed-use development contributes to the social sustainability of a high rise. The paper analyse the 'third' space where people socialise and develop relationships and how they appraise social sustainable high density.

Yang, Qingqing. Space Modernization and Social Interaction: A Comparative Study of Living Space in Beijing. 1st ed. 2015. Berlin, Heidelberg: Springer Berlin Heidelberg : Imprint: Springer, 2015. <https://doi.org/10.1016/j.landurbplan.2005.07.008>

A study executed with ethnography method that observe residents in high-rise buildings in Beijing. The study focuses on the traditional courtyards and social structures of the Chinese urbanism and modernism. This research contributes to understanding how densely populated cities ensure social structures despite crowded high-rise buildings.

Figure list

- Figure 1. Nguyen T.L. The triad theory of Vitruvius about spatial qualities, applied with the theme of social isolation in high-rise building, 2023.
- Figure 2. Nguyen T.L. The mutual interaction of “We shape our buildings and afterwards our buildings shape us.” ,2023.
- Figure 3. Nguyen T.L. The social situation in residential area can be positive or negative for the mental health. ,2023.