SHAPING URBAN SPACES FOR WINTER: ELEVATING LIVELINESS AND SOCIAL INTERACTION

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ABSTRACT

In cities with harsh winters and a humid continental climate, such as Riga, public life significantly diminishes during the cold season. Low temperatures, reduced daylight, and snow create environmental and psychological barriers that discourage outdoor activity and social engagement. This article examines how urban design can counteract these seasonal effects and foster vibrant public life throughout the year. Building on Jan Gehl's principles of human-scale urbanism, the paper analyses winter's impact on human behaviour biologically, psychologically, and culturally, and the associated health consequences of inactivity. Through literature review and international case studies, it identifies three key design strategies: mobility, functionality, and aesthetics, which can elevate liveliness and social interaction in winter cities. The findings suggest that winter should not be viewed merely as a challenge but as a design opportunity. By integrating lighting, inclusive infrastructure, seasonal programming, and sensory engagement, cities can transform winter public spaces into active, healthy, and socially meaningful environments.

KEYWORDS

Winter urbanism, human-scale design, public space, seasonal behaviour, winter mobility, health and wellbeing, cold climate cities, social interaction, winter aesthetics.

1. INTRODUCTION

In cities like Riga, where long winters bring snow, wind, and limited daylight, public life often retreats indoors. Parks empty, plazas fall silent, and streets lose the everyday vibrancy of warmer months. While these seasonal rhythms are deeply familiar, they also raise a critical design question: should cities surrender public space to winter, or can the urban environment be shaped to support outdoor life year-round?

Figure 1a-b. Seasonal contrast in Riga, Vērmanes garden: (a) summertime (Apollo.lv, 2023), (b) wintertime (Lasi.lv, 2023).

Rather than viewing winter as a time of hibernation, this article proposes embracing it as a design challenge and opportunity. Drawing on Jan Gehl's human-scale principles and supported by emerging research in environmental psychology and urban health, it explores how thoughtful design can counteract the physical, psychological, and cultural barriers of cold climates. The article identifies three interrelated strategies- mobility, functionality, and aesthetics- that help reframe winter not as a limitation but as a season that can inspire more inclusive, vibrant, and resilient urban spaces.

2. THEORETICAL BACKGROUND

2.1. Principles

The foundation of this research is based on the principles of human-scale urbanism developed by urbanist Jan Gehl. Unlike car-centric planning traditions, Gehl advocates designing cities at the human scale. This means prioritizing walkability, comfort, social interaction, and sensory experiences in public spaces, especially through informal and low-intensity encounters (Gehl 2011, 29-31).

Gehl (2011) identifies three types of outdoor activities: necessary (e.g., walking), optional (e.g., sitting), and social (e.g., conversation). Necessary activities happen regardless of the environment's quality, but optional and social activities depend heavily on it. Well-designed public spaces encourage people to linger, stroll, connect with others, and increase the potential of spontaneous social interactions (Gehl 2011, 11-13).

Features such as seating, soft edges, active ground floors, and visual continuity make public spaces more welcoming (Gehl & Svarre, 2013). While Gehl's theory doesn't directly address winter conditions, his principles are still relevant. In colder climates, where outdoor activities naturally decline, the quality of public space becomes crucial for sustaining public life. Gehl's framework offers a solid foundation for adapting urban design to seasonal challenges and sustaining urban life outdoors.

2.2. Winter and Human Behaviour

Winter has a significant impact on human behaviour, influenced by biological, psychological, and cultural factors. Historically, people adapted to the cold season by conserving energy, which meant reducing outdoor activities and social interactions. These seasonal habits, rooted in survival strategies, have evolved into culturally accepted norms that continue to influence modern urban life. Seasonal changes to colder temperatures correlate with lower pedestrian activity and decreased usage of public spaces (Chapman et al. 2019).

Figure 2a–b. Stills from "Puika" (Aivars Freimanis, 1977). Source: MumsPatīk.lv (2023), Kinoraksti.lv (2023).

Reduced daylight is a major biological factor in behaviour shifts. Shorter days disrupt the circadian rhythm, which is the internal clock that controls sleep and alertness, leading to increased melatonin production in the body. This hormonal change results in fatigue, excessive sleepiness, and lower motivation (NIMH 2022). Moreover, decreased sunlight limits serotonin synthesis, which can lower mood and increase cravings for carbohydrate-rich foods (Varnum and Hohm 2023).

These neurochemical changes can lead to Seasonal Affective Disorder (SAD), a type of depression affecting about 5% of adults and up to 10% in northern regions. Symptoms include persistent low mood, lack of interest,

oversleeping, weight gain, and cognitive difficulties such as poor concentration (NIMH 2022).

Cold temperatures trigger the hypothalamic-pituitary-adrenal (HPA) axis, increasing cortisol levels. While short-term cortisol responses help manage body temperature and energy, chronic elevation of cortisol weakens immune defences, promotes inflammation, and increases visceral fat, raising for metabolic disorders (James et al. 2023).

2.3. Health Implications of Winter Inactivity

Winter inactivity leads to a range of health issues, physical, mental, and social, with these effects becoming more severe in cold climates due to harsh weather and adaptive human behaviours. The winter season in Latvia correlates with a significant decline in outdoor activity, with serious health consequences.

Physically, inactivity increases the risk of cardiovascular disease, weight gain, and a tendency to seasonal illnesses. In Riga, a study on cold-related mortality showed that overall deaths rose by 41% in winter, mostly due to the added strain of cold weather. This highlights the psychological stress of cold periods places on the vascular and cardiac systems (Åström et al. 2019).

Equally concerning are mental health implications. Reduced daylight and cold-induced social withdrawal increase rates of depression and SAD. During the COVID-19 pandemic, access to green and open spaces became a critical coping mechanism against anxiety and depression. This proves the importance of nature-based recreation for mental well-being (Jūrmalis et al. 2022). Similar findings appeared in Canada, where outdoor public spaces helped reduce isolation and foster resilience during pandemic winters (Freeman 2021).

Well-designed public spaces can play a decisive role in the health impacts of winter inactivity. When adapted for cold conditions by incorporating wind protection, lighting, snow management, and visual appearance, physical activity and social interactions are supported outdoors. Edmonton's "Winter City" strategy is one example of how infrastructure and programming can activate space year-round (Freeman 2021). In Latvia, forests and urban parks remain vital recreational sites, offering not only physical health benefits but also psychological refuge and opportunities for informal connection (Jūrmalis et al. 2022).

3. DESIGN STRATEGIES FOR WINTER-FRIENDLY CITIES

Designing for livability in winter means not only protecting people from cold and darkness but also embracing unique opportunities the season offers. Strategies for creating active and welcoming environments include mobility, which ensures safe and comfortable movement, functionality, which draws people in and encourages social interactions, and a sense of security; and aesthetics contributes to emotional well-being and spatial legibility through lighting, vegetation, and colour. Together, these strategies offer a holistic approach to winter urbanism, not only managing the season but celebrating it.

3.1. Mobility

Mobility in winter is heavily affected by climate conditions. Snow, ice, darkness, and fluctuating temperatures affect how people move and perceive public space. Cleared pathways, good lighting, and inclusive design are not just everyday amenities, they are essential infrastructure. Research in Lulea, Sweden, shows that residents often avoid snow-covered or slushy areas. This reduces the usable area of the public realm and forces people to shift from pedestrian paths to vehicular roads, creating safety risks and decreasing walkability (Chapman et al. 2019, 5-6).

A significant barrier is the "white-out" effect, which occurs when snow covers the boundaries between walking, biking, and driving areas. It makes it difficult for people to navigate and understand their surroundings, particularly for vulnerable groups such as the elderly and individuals with disabilities. Maintaining clear visual cues through lighting, signage, and

surface treatments is essential for supporting safe mobility throughout the year (Chapman et al. 2019, 6-7).

Despite these challenges, winter landscapes can offer unique mobility opportunities. In Lulea, frozen sea surfaces are transformed into mobility routes that support walking, cycling, skiing, and skating. These seasonal infrastructures reflect how snow and ice can be used as assets rather than just an obstacle. (Chapman 2018, 44–45).

Figure 3. Skaters enjoy the Ice Road in Luleå, Sweden, used for both leisure and everyday mobility. Source: David Chapman, 2021.

3.2. Functionality

Functional winter urbanism requires public spaces that promote activity, socialization, and health throughout the year. Urban areas often experience reduced activity in winter, driven not only by harsh weather but also by the lack of infrastructure and programming that supports year-round use (Roche and Talarowski 2018, 2-3). Functional winter design transforms seasonal slowdown into an opportunity by integrating elements such as wind barriers, sun-oriented seating, fire pits, warming shelters, and temporary pavilions that encourage outdoor activity (Wihlborg 2021; Streetsense 2022).

Seasonal programming, such as light festivals, winter markets, and pop-up cafes, can transform spaces into vibrant community spots. For example, Copenhagen's Copen Hot floating sauna and Stockholm's Sankt Eriksplan winter pavilion transform outdoor spaces by encouraging people to spend time outdoors and socialize (Wihlborg 2021). Roche and Talarowski (2018, 4-5) emphasize that temporary winter installations, such as snow mounds and seasonal trails, can reclaim winter areas.

Figure 4. Copenhagen floating sauna (Harbor installation in Copenhagen) Source: Sharing. Lab (2017).

Figure 5. Utopia's indoor parks proposal for Sankt Eriksplan Square, Stockholm. Source: Sharing.Lab, "A Vision for a Livable Winter City," 2017.

Engaging in outdoor activities during winter is important for health. A study in northern Finland found that even when temperatures dropped to -30°C, 7–8-year-old children remained active through sledding, skiing, skating, and snow play (Rasi et al. 2017, 3-5). Although some reported cold-related symptoms, most children remained active, contributing to physical development, emotional health, and long-term resilience. With proper clothing and proper infrastructure, winter play can be beneficial to health. Streetsense (2022) also highlights that strategies focused on warm light and varied programming help reduce social isolation, improve mental health, and

benefit local economies.

Figure 6. Taika Kindergarten in Finland, designed by OOPEAA. Source: Marc Goodwin / ArchDaily, 2018.

3.3. Aesthetics

Aesthetics during winter in cities is more than a visual concern. It is critical to perception, comfort, and engagement. As light diminishes, greenery fades, skies get grey, and snow blankets urban forms, the visual experience transforms drastically. Thoughtful aesthetic strategies by using colour, lighting, and vegetation can dramatically enhance the atmosphere of winter environments, promoting usability of public spaces (Chapman 2018, 55-56).

Figure 7. Winter conditions in a residential area of Riga. Source: Sakopt Rīgu, 2024.

Lighting in urban spaces is not just for visibility and safety, but it also plays a significant role in making spaces inviting and approachable. In Montreal, creating lighting installations during the “Luminotherapie” festival activates public interaction through sensory and kinetic displays (Beall 2025). Similarly, in Latvia “Staro Rīga” festival uses temporary urban lighting to reimagine familiar places, encouraging exploration of the city centre even during the darkest time of the year (RVP 2024).

To combat visual monotony, it is necessary to bring colour into the public realm. Stockholm’s architectural policy explicitly encourages to use of bright and warm façade colour to counteract the grey winter sky, stating “carefully chosen colour schemes improve the sense of spaces and seasonal mood” (Stockholm 2015, 44-46). Painted surfaces, colourful street furniture, and playful installations can provide visual stimulation.

Though often overlooked in winter design, vegetation offers structural and atmospheric benefits to outdoor spaces, providing colour and volume. Evergreen trees, ornamental grasses, and textured bark can frame views, break the wind, and catch snow in sculptural ways, enriching the spatial quality (Chapman 2018, 56). Moreover, Jan Gehl emphasizes the importance of layering experiences through human-scale interventions that consider sensory engagement, including texture, light, and warmth, for engaging and vibrant public life (Gehl 2011, 124-126).

Figure 8. Light installation “Laiku Loki” during the Staro Rīga Festival. Source: Staro Rīga, 2023.

4. CONCLUSIONS

Designing vibrant winter cities is not without its challenges. Financial constraints, short-term political priorities, and ecological considerations, such as increased energy use for lighting or heating, can limit ambition and delay implementations. But the cost of inaction is equally significant- growing isolation, declining health, and lost opportunities for community

resilience.

To move forward, winter must be reframed not merely as a season to endure, but as a season to design for, to make it more liveable and engaging. Snow, cold, and darkness are not just obstacles, they are design materials that can shape more inclusive and interactive public spaces. Cities that embrace this perspective can create environments that are active, healthy, and welcoming all year round.

Realizing this vision demands long-term investment and collaboration across sectors. The reward is not only improved functionality but also a stronger emotional, social connection and a tangible benefit to public health. The question is no longer whether we can survive winter, but whether we will design to thrive in it.

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4. Figure Copenhagen floating sauna in Copenhagen Harbor. Source: Sharing.Lab, “A Vision for a Livable Winter City,” 2017. https://medium.com/we-research-and-expriment-with-how-the-sharing/a-vision-for-a-livable-winter-city-929064aeadfe

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6. Figure Taika Kindergarten in Finland. Designed by OOPEAA. The wooden structure, warm lighting, and color scheme serve as an example of winter-sensitive architecture for children. Photo: Marc Goodwin. Source: ArchDaily (2018).

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8. Figure Light installation Laiku Loki featured in the Staro Rīga Festival. Source: Staro Rīga. https://staroriga.lv/en/laiku-loki/