

kotakita⁺

Design of a Community Center in Batam Center Through Social Condenser Design Approach

Final Architectural Design Studio
International Undergraduate Program in Architecture

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Final Architectural Design Studio
Laboratory of Architectural Modelling and Urbanism

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Through Social Condenser Design Approach**

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KotaKita: Perancangan Pusat Komunitas di Batam Center
Melalui Pendekatan *Social Condenser*

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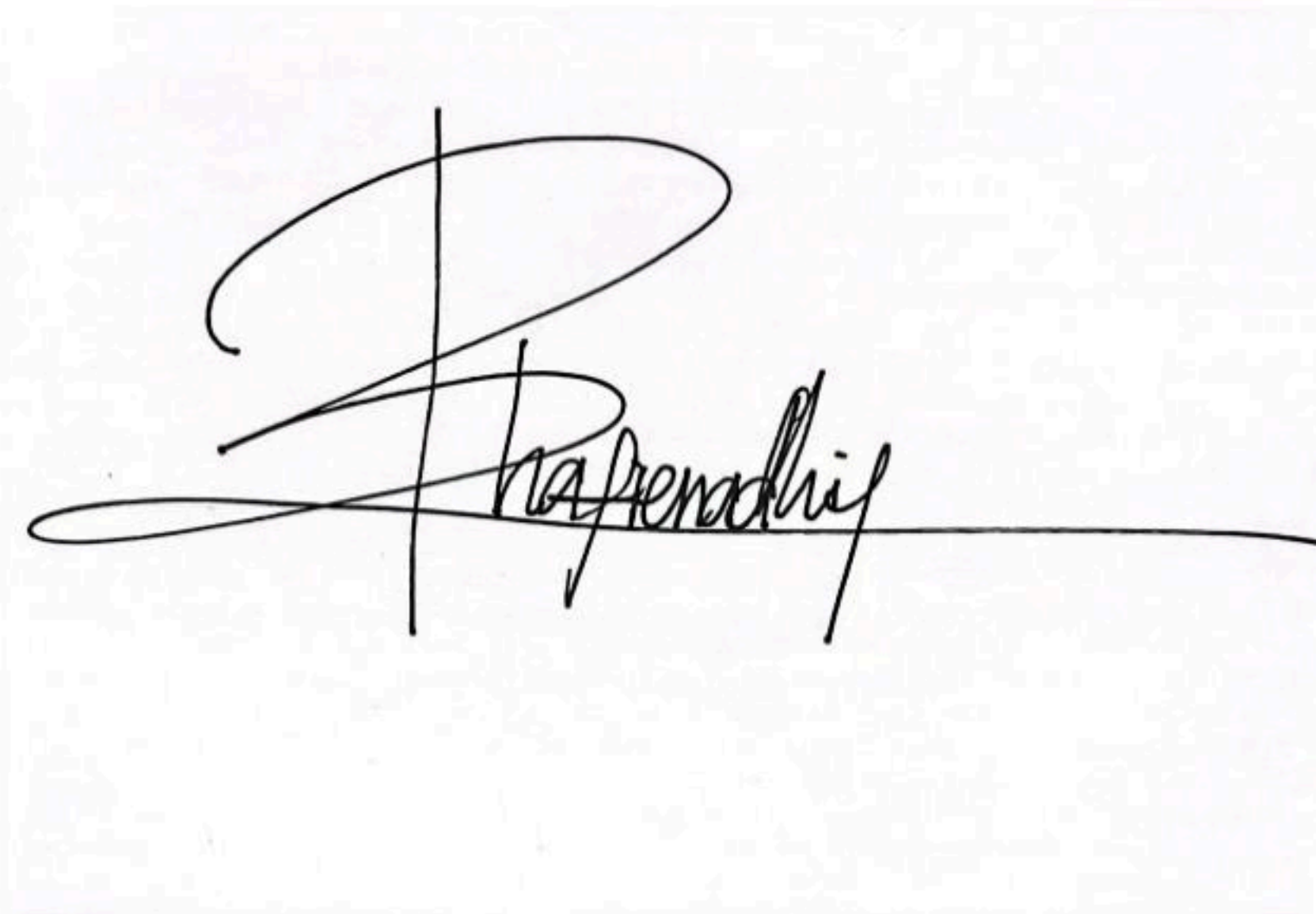
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Yogyakarta, February 2026



Mohd Rhafie Nadhif Nureski

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Yogyakarta, February 2026

Mohd Rhafie Nadhif Nureski

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Abstract

Batam Center is characterized by rapid industrial-led urban development, vehicle-oriented mobility patterns, and fragmented social spaces that limit sustained public interaction and everyday community engagement. Despite its dense residential surroundings and strategic transit connectivity, the area lacks an inclusive civic platform capable of accommodating diverse demographics while fostering incidental social encounters beyond commercially driven environments.

This project proposes a community center designed through the social condenser design approach, which strategically organizes diverse programs along a primary linear corridor functioning as a social spine. By maximizing shared boundary length, intensifying program adjacency, and establishing deliberate convergence points, the design promotes unplanned interactions across user groups. Gradient zoning from public to private, porous circulation, visual permeability, and integration with pedestrian and transit networks reinforce the building's role as an urban connector rather than an isolated object.

The resulting architectural configuration operates as a community center that supports daily occupancy, multi-generational activities, and flexible community events. Through spatial integration, contextual responsiveness, and a neutral middle-ground architectural identity, the project establishes a socially dynamic community center that strengthens urban connectivity and cultivates sustained social interaction in Batam Center.

Keywords: Community cente; Batam center; Industrial-led urban development; Middle-ground architecture; Social condenser

Abstrak

Batam Center ditandai oleh perkembangan urban-industri yang pesat, pola mobilitas yang berorientasi pada kendaraan, serta fragmentasi ruang sosial yang membatasi interaksi publik yang berkelanjutan dan keterlibatan komunitas dalam keseharian. Meskipun dikelilingi oleh kawasan hunian berintensitas tinggi dan memiliki konektivitas transportasi yang strategis, kawasan ini belum memiliki wadah sipil yang inklusif untuk mengakomodasi beragam demografi serta mendorong pertemuan sosial yang tidak terencana di luar ruang-ruang komersial.

Proyek ini mengusulkan perancangan pusat komunitas melalui pendekatan *social condenser*, yang mengorganisasikan beragam program sepanjang koridor linear utama yang berfungsi sebagai *social spine*. Dengan memaksimalkan panjang batas bersama antarprogram, memperkuat adjacensi, serta membentuk titik-titik konvergensi yang disengaja, desain ini mendorong terjadinya interaksi lintas kelompok pengguna secara insidental. Penerapan zonasi bertahap dari publik ke privat, sirkulasi yang porous, permeabilitas visual, serta integrasi dengan jaringan pedestrian dan transportasi publik memperkuat peran bangunan sebagai penghubung urban, bukan sebagai objek yang terisolasi.

Konfigurasi arsitektural yang dihasilkan berfungsi sebagai pusat komunitas yang diperluas mendukung okupansi harian, aktivitas multi-generasi, serta kegiatan komunitas yang fleksibel. Melalui integrasi spasial, respons kontekstual, dan identitas arsitektur middle-ground yang netral, proyek ini menghadirkan pusat komunitas yang dinamis secara sosial, memperkuat konektivitas urban, serta menumbuhkan interaksi sosial yang berkelanjutan di Batam Center.

Keywords: Pusat komunitas; Batam Center; Perkembangan urban-industri; Middle-ground architecture; Social condenser

1

Background
Study

Background Issues

Industrial Driven Urban Development

Batam's urban growth has been strongly shaped by its initial vision as a center for high economic value industries. Over time, this direction has intensified, with development primarily focused on manufacturing sectors that sustain the city's economy. These industries include electronics, network and IT services, communication devices, semiconductors, electrical components, and vehicle production along with spare parts manufacturing. In addition to manufacturing, Batam has expanded into service-based industries, notably logistics, tourism, maintenance, repair and overhaul (MRO), health, education, and finance. Currently, the city contains at least 31 designated industrial areas, reflecting its identity as an industrial hub. This orientation toward industrialization has yielded significant economic growth, with Batam's economy expanding by 7.04% in 2023—well above the national average of 5.2%. Industrial activities are unevenly distributed across the city (**see table 1.1**), with Batam Kota, Batu Aji, Batu Ampar, and Sei Beduk emerging as key industrial districts. In total, there are 482 registered large and medium industries operating across Batam, indicating an intense concentration of economic activity that has a strong spatial impact on land use and development patterns. Employment

trends mirror this industrial structure. As of 2024, approximately 606,490 residents—or about half of Batam's population—are part of the city's workforce. **Table 1.1** shows the number of industries in each districts in Batam. These workers are largely concentrated around the industrial zones, generating distinct patterns of daily commuting and economic clustering

Number of Industries in Each District (BPS Kota Batam, 2021)

Belakang Padang	1
Sei Beduk	74
Sagulung	31
Nongsa	35
Batam Kota	144
Sekupang	19
Batu Aji	79
Lubuk Baja	12
Batu Ampar	79
Bengkong	8
Total	482

Table 1.1
Number of Industries in Batam
BPS edited by Author (2025)

Consistent Population Growth

Batam has experienced continuous and rapid population growth since its establishment as an industrial city. Population data shows an exponential increase from only 47,111 residents in 1980 to 1,196,396 residents by 2020. This growth has occurred in distinct phases: a period of rapid expansion from 1980 to 1990, followed by an explosive industrialization-driven phase between 1990 and 2000, during which the population grew by an estimated 15.4% per year. Although the growth rate has since moderated, Batam continues to experience steady demographic expansion at around 2.3% annually from 2010 to 2020. As seen on Figure 1.1 and Figure 1.2 shows a phenomenon of high volume of migrants arriving in Batam through sea transport.



Figure 1.1
Migrants Arriving in Batu Ampar Port

Source: Batam Pos, 2025
<https://batampos.co.id/2025/04/12/hampir-20-ribu-pendatang-masuk-batam-hingga-awal-april-2025/>



Figure 1.2
Migrants Arriving in Batu Ampar Port by PELNI from Belawan, North Sumatra

Source: Batam Pos, 2025
<https://batampos.co.id/2025/04/12/hampir-20-ribu-pendatang-masuk-batam-hingga-awal-april-2025/>

Migration plays a major role in sustaining this population increase. Data from the Department of Population and Civil Registration (Disdukcapil) of Batam City indicates that as of April 2025, 19,927 new residents have moved into Batam, compared to 14,249 who have left. This net positive migration underscores Batam's enduring appeal as a destination for people seeking better economic prospects. Migration is largely driven by employment opportunities, job assignments, family reunification, and educational pursuits. Batam's strategic role as a rapidly developing industrial and trade hub attracts people primarily from Sumatra and Java, reinforcing its reputation as a city of opportunity. The continuous influx of new residents not only contributes to urban expansion but also increases the pressure on public amenities.

Low Livability and Limited Access to Public Recreational Amenities

Despite its economic success, Batam faces persistent challenges related to urban livability and inclusivity. Globally, urbanization continues to rise, and in Indonesia, 57% of the population now lives in urban areas—a figure that matches the global average. This urban concentration often intensifies issues related to the quality of life in cities, especially those driven primarily by economic growth. As centers of capital and opportunity, cities like Batam attract large populations but often struggle to maintain balanced development that supports social well-being and environmental quality.

Livability, as defined by CitiesPLUS, encompasses an urban system that fosters physical, social, and mental well-being, as well as personal development for all inhabitants. It emphasizes equity, dignity, accessibility, conviviality, participation, and empowerment. The principles of a livable city also align with the Sustainable Development Goals (SDGs), advocating for accessible public spaces that encourage community interaction (SDG 11 and 15), support economic, social, and cultural functions (SDG 4, 8, 11, 17), and ensure environmental quality (SDG 11, 12, 13). However, the Most Livable City Index in Indonesia places Batam below the national average, with a composite score of 68. The city ranks particularly low in areas such as the informal sector, waste management, art and cultural facilities, pedestrian infrastructure, and public information and participation. These deficiencies indicate limited access to inclusive public amenities and third spaces—places that facilitate informal social interaction, leisure, and cultural expression. The lack of adequate pedestrian networks and recreational infrastructure further reduces the city's accessibility and overall livability. Mapping analyses suggest a significant gap in walking-radius access to public amenities, underscoring the need for improved urban inclusivity and social infrastructure.

Neglected Social Ties Due to the City's Industrial Oriented Development

Batam's industrial development has significant impacts on two key urban dimensions. First is urban morphology, which refers to the city's physical form, including building typologies, infrastructure networks, and spatial organization. Second is social dynamics, which concern how the population operates, interacts, and organizes itself within the urban environment. Figure 1.3 exhibits workers in an electronic based industry factory which explains the existence of such industry due to demand in the area making such jobs the primary role within the population.



Figure 1.3
Workers in an Electronic Based Industry Factory in Batam

Source: Candra Gunawan, 2025
<https://gokepri.com/pasar-kerja-batam-serap-10-ribu-pencari-kerja-industri-masih-mendominasi/>

As an industrial city, Batam exhibits social dynamics commonly observed in rapidly industrializing urban regions such as Shenzhen, China, and Johor Bahru, Malaysia. High rates of migration, a labor-dominated demographic structure, and accelerated urbanization create inherent pressures on social cohesion. These conditions often lead to social segmentation, manifested in several forms:

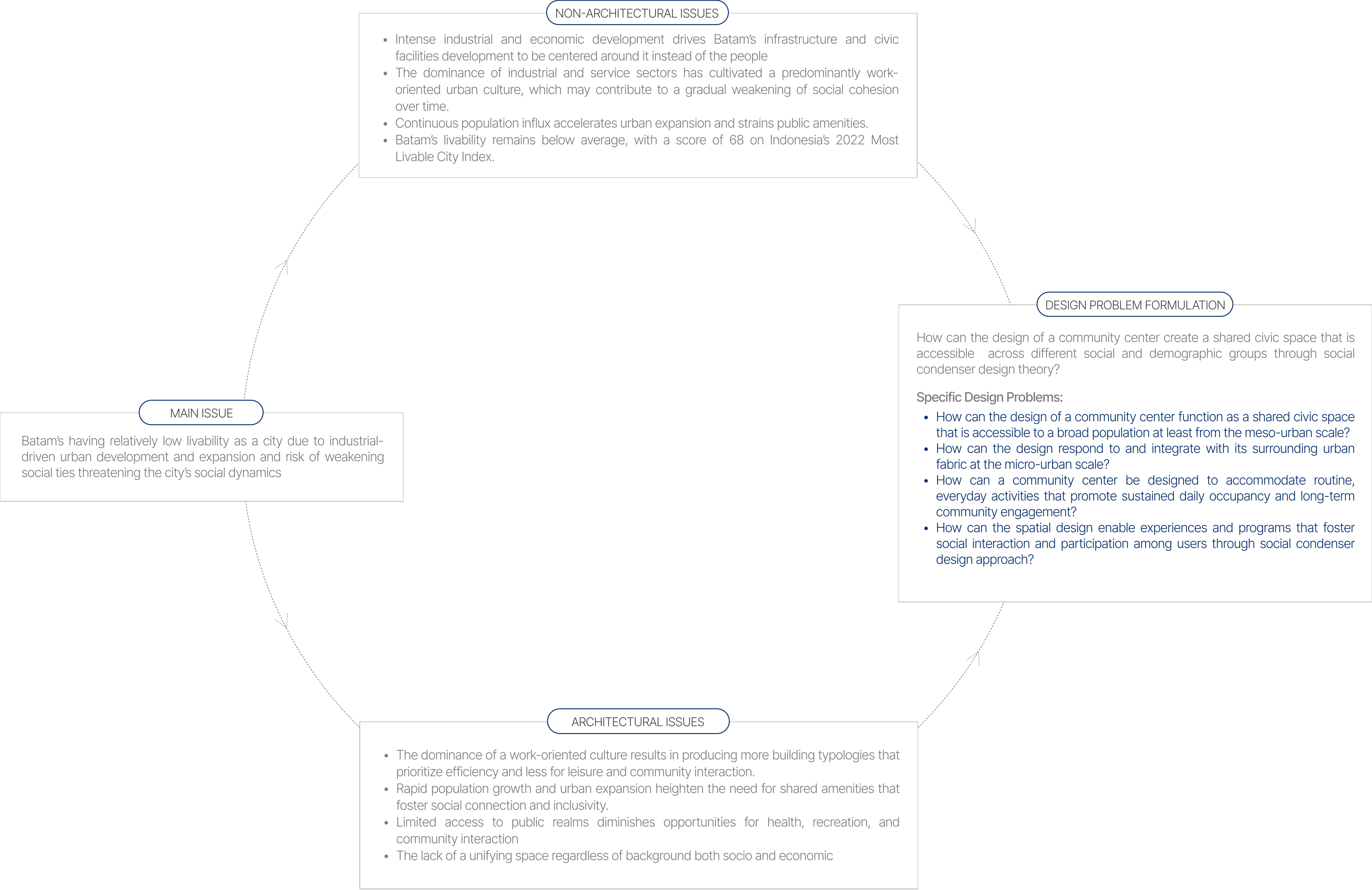
- Class-based segmentation
- Cultural fragmentation
- The emergence of enclaves defined by workplace affiliation, place of origin, and income level

These challenges are further exacerbated by the limited availability of public infrastructure that facilitates interaction across social groups. Under current conditions, social interaction during leisure time is largely concentrated in retail-oriented environments such as shopping malls, food and beverage venues, and commercial entertainment spaces. In sociological terms, these spaces are referred to as “privatized social spheres.” When the provision of public leisure infrastructure does not grow proportionally with population and urban expansion, several consequences emerge:

- Unequal, class-based access to social place
- The development of parallel lifestyles among different social groups
- A reduction in shared civic experiences

These conditions directly affect social cohesion, a critical component of urban livability. Social cohesion refers to the degree of connectedness and solidarity among groups within a society and is shaped by two primary dimensions:(1) the quality of relationships among community members, and (2) the sense of belonging to the city as a shared collective entity. Ultimately, the absence of inclusive and accessible public spaces undermines these dimensions, weakening social cohesion and diminishing the overall livability of the city.

Problem Mapping



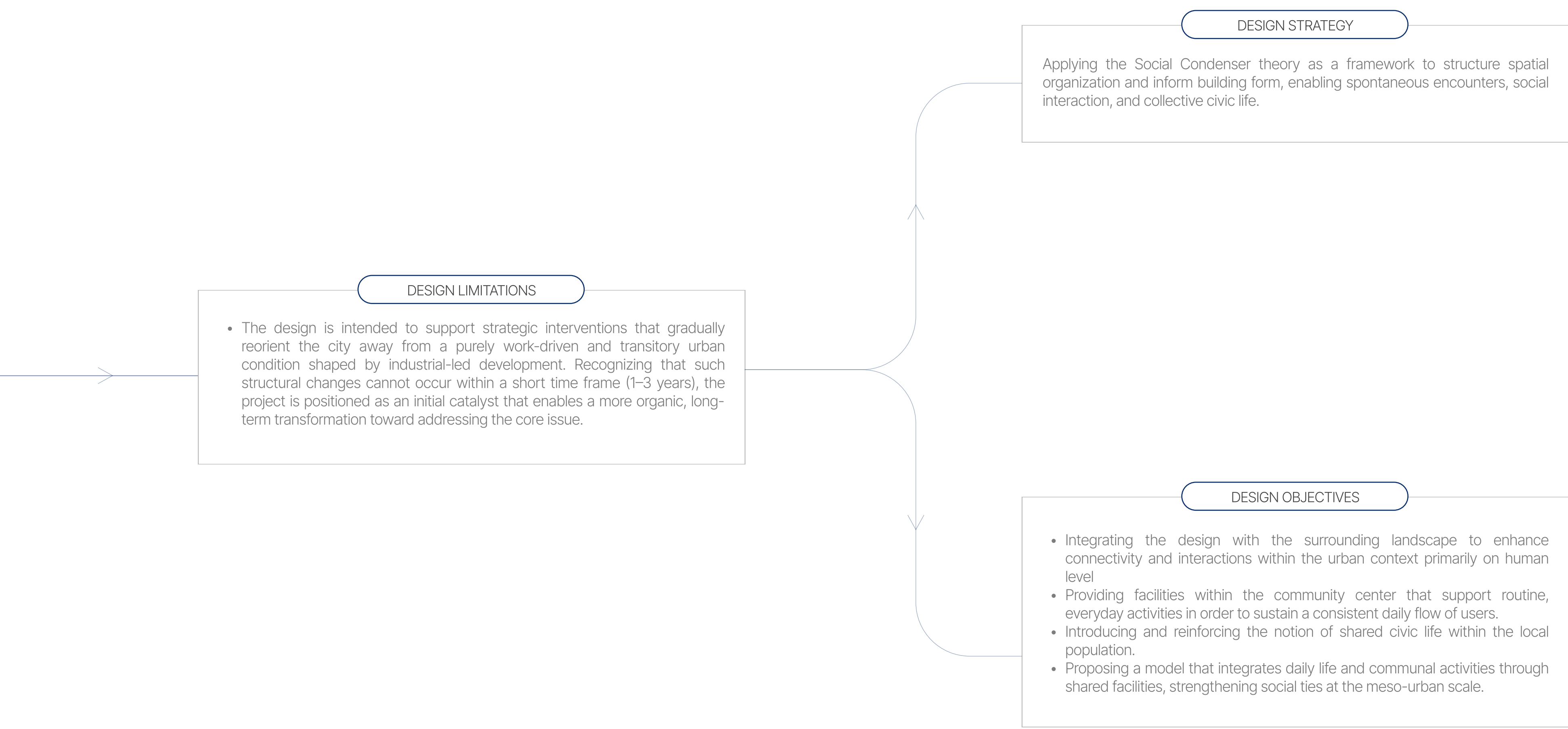


Figure 1.4
Problem Mapping

Author (2025)

Problem Solving Framework



Figure 1.5
Problem Solving Framework

Author (2025)

Design Problem Matrix

	Practical	Formal	Symbolic	Radical
City Council of Batam	Perda No 2 Tahun 2011 Buildings for public interest are buildings whose function is for public purposes, whether in the form of religious functions, business functions, or social and cultural functions.	Perda No 2 Tahun 2011 A building permit (IMB) is an authorization granted by the City Government to building owners to construct new buildings, alter, expand, reduce, and/or maintain buildings in accordance with the applicable administrative and technical requirements.	Perda No 6 Tahun 2024 To realize Batam as a Civilized, Advanced, Cultured, and Sustainable World City, while taking into account global changes, regional challenges, and the potential that can be optimized.	United Nations SDG 11 Make cities and human settlements inclusive, safe, resilient, and sustainable
Residents of Batam Center	The need for an integrated space to accomodate health and leisure activities and public space outside of work and school (First and Second Place)	-	An articulated building design with spatial organization that facilitates and sustains the activities of a community center	Able to form stronger social bonds between each other
Concession Agency of Batam and City Council	Designing infrastructure that aligns with the medium- and long-term development plans to establish a livable city.	Providing infrastructure that accommodates the primary needs of health and leisure of its citizens	Creating infrastructure that both functions as and symbolizes the focal point of the community within the area of Batam Center	Becoming a solution model for other regions within the city that necessitates the existing of a community center or similar typologies
The Architect	Developing a Transit Oriented and one-stop building that combines community, culture and leisure into a functioning community center in Batam Center..	Designing an articulated building design with spatial organization that facilitates and sustains the seamless flow of community, culture and leisure	Designing architecture that is human centric and porous as a symbol of livability of the city	Designing architecture that is human centric, porous and facilitates the need of a third place for Batam's citizens

Table 1.2
Bryan Lawson Design Problem Matrix
Author (2025)

Project Novelty

Project Title	Construction of Community Center with Social Sustainability Approach at Petojo Utara	Design of Community Center to Re-Activate The Urban Redundant Space in Magelang Through Inclusive Design Approach	Design of a Cultural Quarter as a Catalyst for Urban Regeneration Through Mixed-Use Configurations in Public Space Planning
Project Author	Yuda, Hendi	Vegantara, Vanidia	Adellin, Valerin Aiko
Univeristy of Origin	Universitas Pelita Harapan	Universitas Islam Indonesia	Universitas Pelita Harapan
Year of Publication	2020	2021	2024
Project Location	Petojo Utara, Gambir, Jakarta	Magelang	Jakarta
Approach Used	Social Sustainability	Inclusive Design	Mixed Use, Transit-Oriented Development
Project's Focus	The project focuses on the lack of spaces that encourage social interaction in Petojo Utara, a high-density urban neighborhood in Central Jakarta, where daily activities are largely limited to work, domestic routines, and necessary movement. Despite the area's dense population, there is an absence of facilities that support voluntary, informal, and inclusive social interaction.	This project focuses on transforming redundant urban space in a dense city context into an inclusive community center that mitigates spatial conflict, supports social interaction, and strengthens tolerance among diverse communities.	Designing an integrated mixed use and Transit Oriented Development (TOD) building, aiming to create a socially and economically active environment for cultural and symbolic economy. The design is based on three pillars live, work, visit and emphasizes public space activation, spatial configuration, and continuous 24 hour activity to build a strong sense of place.
Similarity	• Typology • Background issue revolving around social interactions	• Typology	• Design emphasis on public space planning and meso-level interaction
Distinctions	• Design approach used • Level of architectural intervention into the social interactions	• Design goals that emphasizes on multifaith interaction • Design focuses on space reactivation	• Design approach used • Design emphasizes on culture and symbolism

Table 1.3
Project Novelty Comparison Table
Author (2025)

Problem Statement

Batam's urban development has been predominantly shaped by an industrial-driven growth model that has successfully stimulated economic expansion and attracted a labor-dominated migrant population. However, this development trajectory has also generated significant social and spatial challenges. The prioritization of industrial zones and productivity-oriented infrastructure has contributed to a fragmented urban morphology and an uneven distribution of public amenities. At the same time, rapid migration and accelerated urbanization have intensified class-based segregation, cultural fragmentation, and the formation of enclaves structured around workplace affiliation, income level, and geographic origin.

Social interaction within the city has increasingly shifted toward privatized, retail-oriented environments, limiting inclusive access to leisure and civic life. The insufficient provision of public recreational and social infrastructure has resulted in unequal access to social spaces, the emergence of parallel lifestyles among different social groups, and a decline in shared civic experiences. Collectively, these conditions risk weakening social cohesion and reducing the overall livability of Batam.

From an urban and sociological perspective, Batam exhibits multiple structural conditions commonly associated with weakened social cohesion in rapidly industrializing cities. Although the extent of social deterioration has not yet been empirically measured, the presence of these underlying conditions provides a strong theoretical basis for concern. Consequently, this context justifies the need for a preventive architectural intervention aimed at fostering inclusive interaction, strengthening social capital, and reinforcing shared civic life before further fragmentation becomes entrenched.

An important question arises then; will Batam evolve into a merely transitory city shaped by short-term economic mobility, or can it become a livable and inclusive city capable of sustaining social life across generations?

Design Hypothesis

Designing a community center can address the lack of inclusive public infrastructure by providing a shared space that supports social life beyond the domains of work and home, thereby enhancing urban livability. When designed using a framework that prioritizes social bridging and interaction, the community center can function as a catalyst for civic engagement, fostering cross-group encounters and, ultimately, strengthening residents' sense of belonging to the city.

2

Context
Study

Context Analysis

Ethnography Study

The aim of this analysis is to establish the significance and relevance of the primary subject of the study — the citizens of Batam. As the key users of the proposed design, their behaviors and routines provide critical insight into the spatial needs that will inform the architectural development. Given Batam's industrial and economically oriented urban context, the analysis focuses on examining residents' daily activities to identify patterns and infer how such a context influences community behavior, social interaction, and collective use of space.

Demographic and Socioeconomic Background

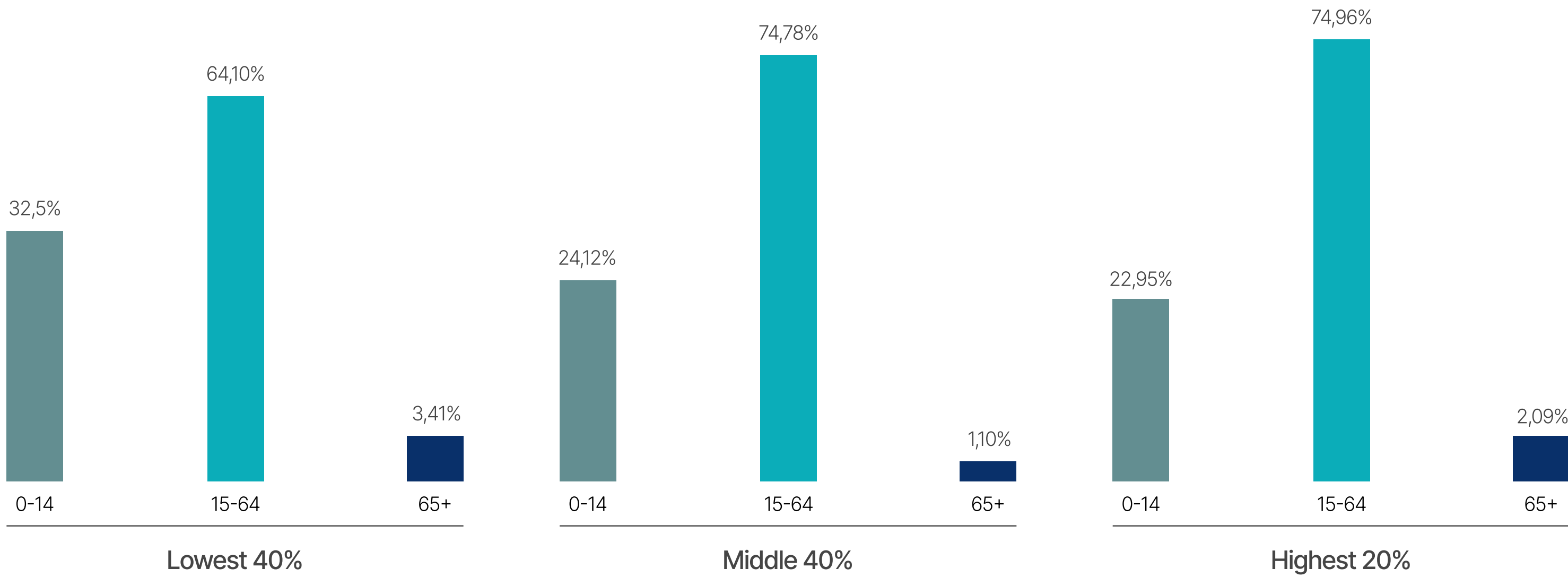


Figure 2.1: Population Percentage by Expenditure Characteristics and Age Group (%)
BPS (2024) edited by Author

Figure 2.1 shows that both middle (74.78%) and upper (74.96%) expenditure groups are dominated by the productive age (15-64) which shows a greater workforce participation tied to stable employment and formal sector jobs. The elderly age shown in the table is only 1-3% further suggesting that Batam is a migrant and working age city where people move for jobs rather than to retire. With 70% of the population being in the working age makes it a clear indicator that of an urban-industrial city phenotype

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Shown on **Figure 2.2**, both men and women in Batam show relatively high educational attainment, with 60.58% of men and 65.92% of women holding at least a high school or equivalent diploma. This indicates that education plays a significant role in shaping the city's workforce, aligning with Batam's economic structure as an industrial and service-oriented urban area. The data suggests that a minimum of high school education has become the norm or requirement for employability, particularly in the manufacturing, trade, and administrative sectors that dominate Batam's economy. The comparatively small percentage of residents without a diploma (3.82%) or only with elementary-level education (14.15%) highlights a population that

is largely educated to secondary level, reflecting access to schooling and urban educational infrastructure. Moreover, the slightly higher proportion of women with high school-level education may also indicate increasing female participation in the formal labor market, as educational access expands beyond gender divides. Overall, this pattern reinforces Batam's identity as a productive, work-oriented city, characterized by a young, educated labor force prepared to meet the demands of its industrial and trade-driven economy.

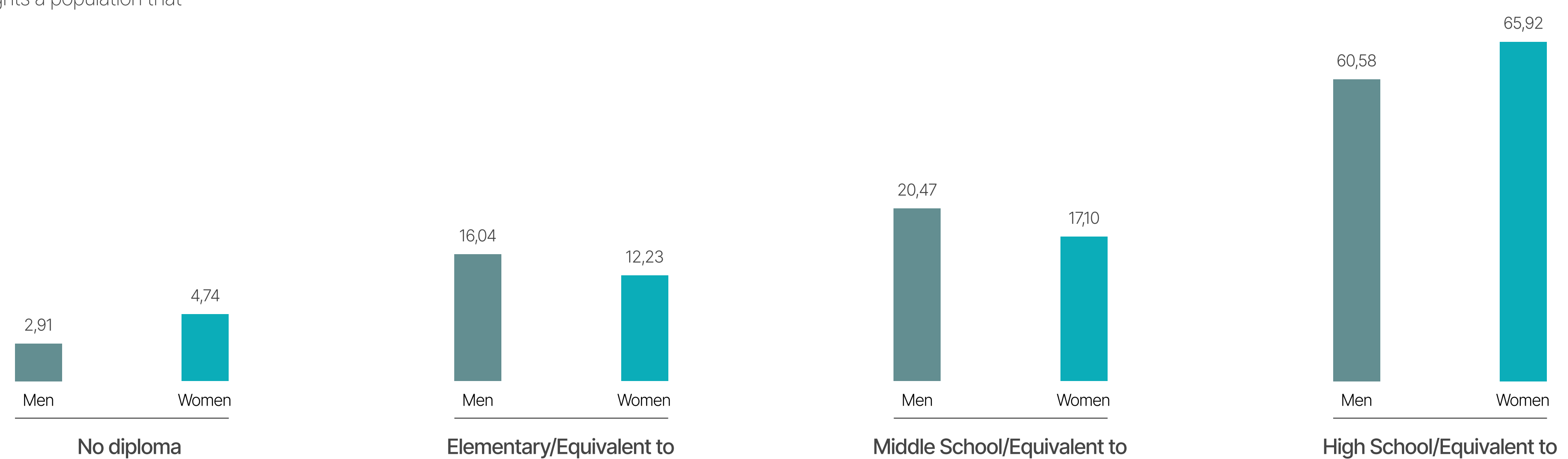


Figure 2.2: Population Percentage by Highest Diploma (%)
BPS (2024) edited by Author

Figure 2.3 shows that the five largest age groups in Batam fall within the 20–44 year range, covering individuals in their prime working years. This concentration indicates that the city's population is largely composed of people within the productive or labor force age group. Such a distribution highlights Batam as a working-centric city, where the majority of residents are in their most active employment phase. The dominance of this age category reflects the city's role as a hub for industrial and commercial activity, attracting a workforce that supports its economic engine.

The steady numbers across these age ranges also suggest a stable inflow of working-age migrants, consistent with Batam's reputation as a destination for job seekers and professionals. Overall, the data portrays Batam as a city driven by its productive population, emphasizing its character as an economically active and labor-oriented urban center.

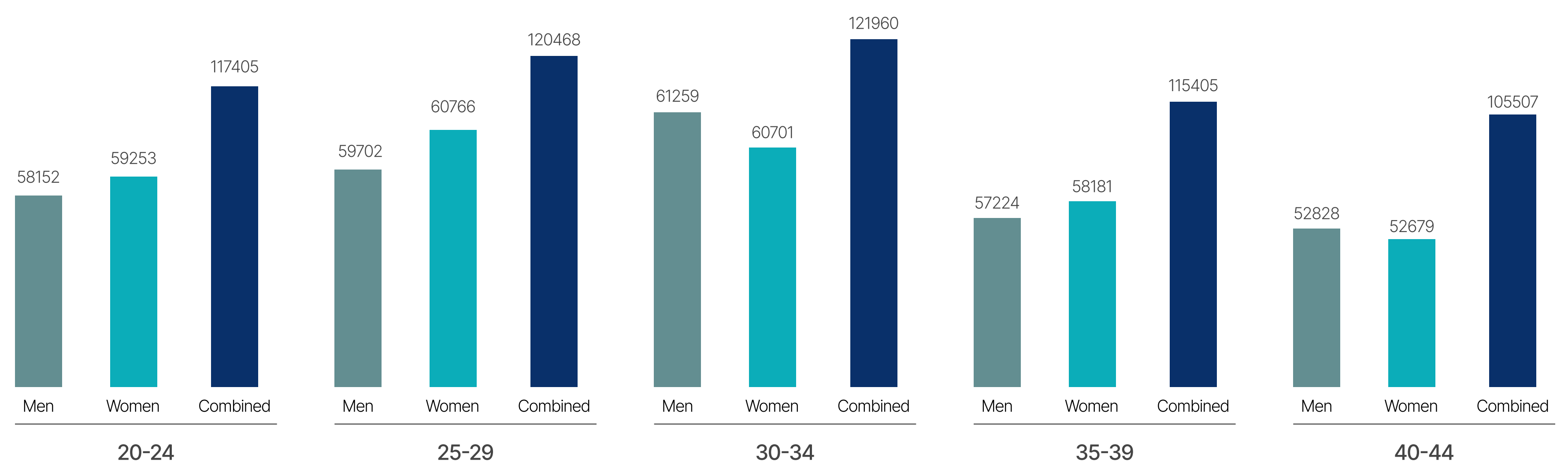


Figure 2.3: Population Number by Age Group and Gender
BPS (2024) edited by Author

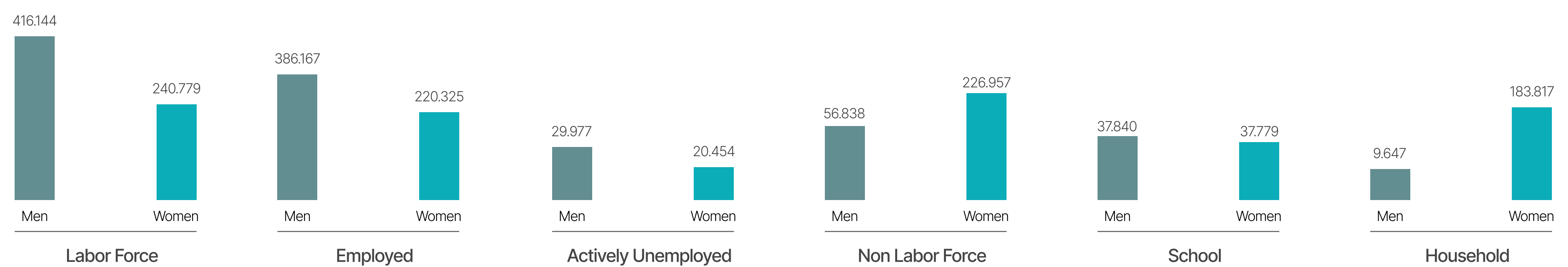


Figure 2.4: Population Aged 15 and Over by Activity in the Past Week and by Gender
BPS (2024) edited by Author

From **figure 2.4**, out of a total of 656,923 individuals in the working-age group, 606,492 are employed, indicating a relatively low unemployment rate within Batam's formal workforce. This suggests that the majority of the population is actively engaged in employment, reflecting a high level of labor participation and reinforcing Batam's identity as a work-oriented and economically active city.

Figure 2.5 shows that Batam's workforce is largely concentrated in the manufacturing (250,639 workers) and service sectors (347,038 workers), reflecting its industrial and work-oriented character. Although the data lists zero employment in trade, hotel, and restaurant sectors, this is likely a recording error, as these industries are visibly active. Overall, the city's labor force is dominated by the formal sector, emphasizing Batam's role as a productive industrial hub.

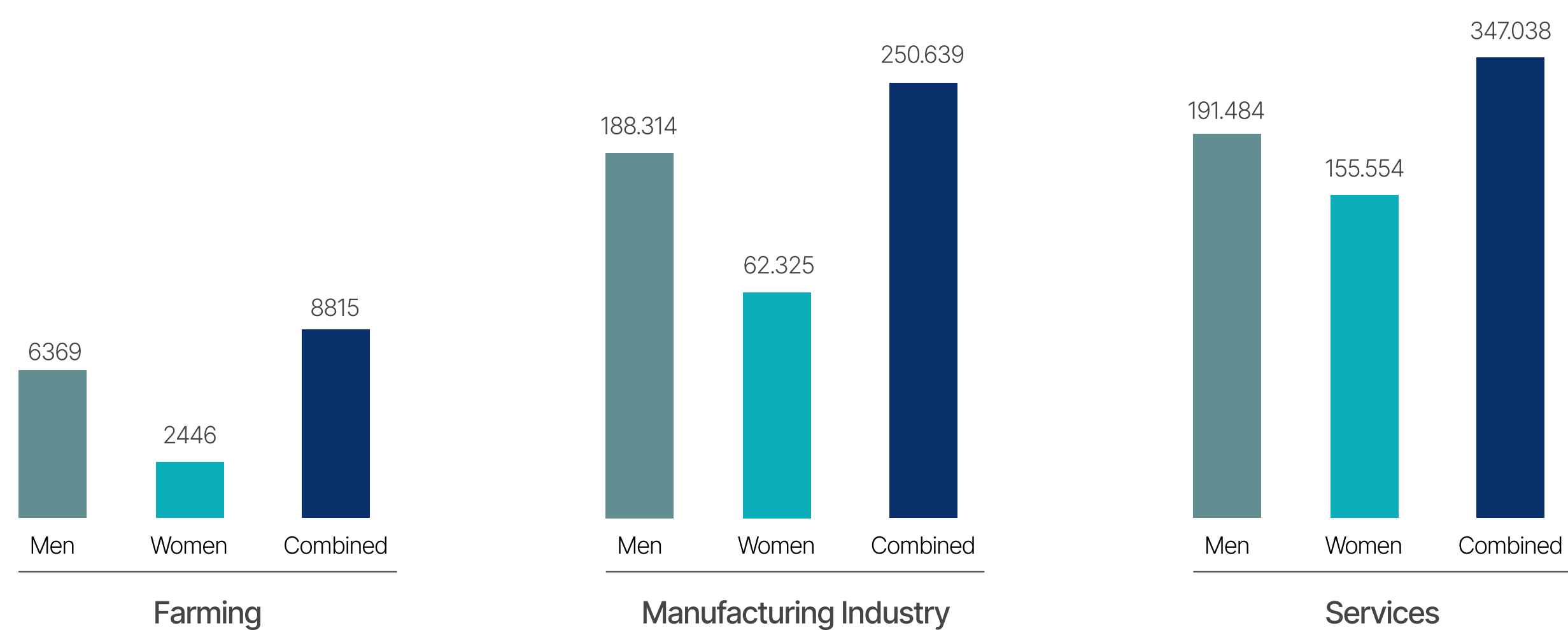


Figure 2.5: Working Population Aged 15 and Over by Industry and Gender
BPS (2024) edited by Author

Figure 2.6 shows that the largest working group is those clocking 41+ hours (363,860 people), followed by the 35-40 hours group (143,149 people). Cumulatively, 507,009 people work 35 hours or more per week, highlighting a significant concentration of the working population in long-duration employment. The 363,860 people in the 41+ hours category clearly exceed the standard working limit of 40 hours per week as stated in Law No. 11 of 2020 on Job Creation (UU Cipta Kerja).

This strongly suggests a widespread pattern of overtime work or employment in sectors with atypical working hours. Hence, there should be an intervention at least architecturally in how the side effects of the long working hours can be treated such as creating spaces for leisure activities beyond work.

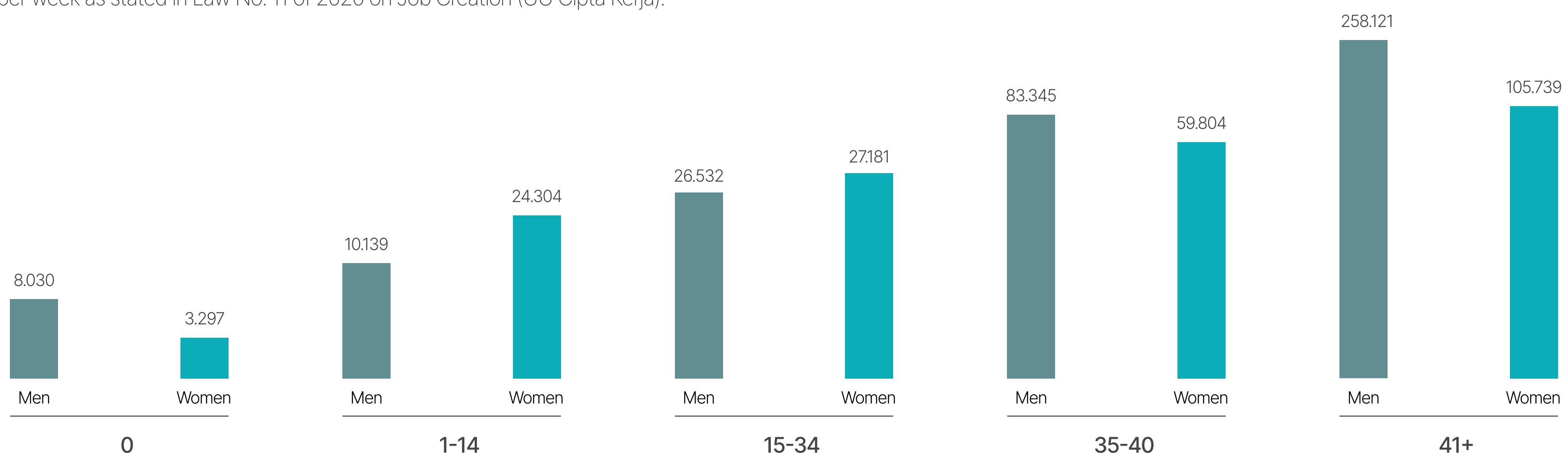


Figure 2.6: Employed Population Aged 15 and Over by Total Working Hours and Gender
BPS (2024) edited by Author

Community, Culture and Leisure

Culture and Communal Activities

Batam's cultural landscape is deeply rooted in the Malay heritage, a tradition strongly intertwined with Islamic values that continue to shape the city's social fabric. These influences appear vividly in everyday life through ceremonial practices, myth-inspired performances, and artistic expressions such as dance, music, and theater. The city's commitment to preserving its cultural identity is reflected in several key festivals held throughout the year. **Figure 2.7** shows among them is the Festival Kenduri Seni Melayu, a long-running celebration held every November–December for the past two decades, showcasing classical Malay arts with Mak Yong theater as one of its highlights.

Another notable event is the Festival Kampung Terih in Nongsa, established in 2017, which brings visitors into the heart of a traditional Malay village to experience local customs and creative activities. Complementing these heritage-centered events is the Batam International Culture Carnival, a vibrant street-style spectacle that transforms cultural motifs into fashion-forward performances. Together, these festivals illustrate Batam's dynamic blend of tradition, creativity, and contemporary leisure culture.



Batam Cultural Festival
Source: <https://bpbatam.go.id/tentang-batam/ragam-budaya/>



Batam Cultural Festival
Source: <https://bpbatam.go.id/tentang-batam/ragam-budaya/>



Batam Cultural Festival
<https://bpbatam.go.id/tentang-batam/ragam-budaya/>



Batam Sunday Market
Source: <https://www.antarafoto.com/id/view/2517085/bazar-thrifting-di-batam>



Batamlacious Food Bazaar
Source: <https://www.batamnews.co.id/berita-51613-batamlacious-bazar-vol-4-kuliner-kaki-lima-diserbu-wisman-singapura.html>

Figure 2.7
Culture and Communal Activities in Batam
(from top left to right: Batam Cultural Festival; Batam Cultural Festival; Batam Cultural Festival; Batam Sunday Market; Batamlacious Food Bazaar).
Source: BP Batam, 2022, Teguh Prihatna, 2025, Dyah 2019

The diversity of community profiles, cultural expressions, and leisure patterns demonstrated in the attached images and statistical data indicates a highly heterogeneous urban population with varying social practices, age groups, and daily routines. Such demographic and behavioral complexity suggests that a singular, specialized programmatic response would be insufficient to accommodate the spectrum of needs present within the site's context. Instead, a generalist design approach becomes necessary—one that does not privilege a specific user group, cultural identity, or activity type, but rather establishes an inclusive spatial framework capable of supporting multiplicity. This approach requires the creation of flexible, overlapping and adaptable

spaces that allow different social groups to coexist within a shared architectural environment. Rather than segregating functions into rigidly bounded zones, the design must encourage visual permeability, spatial adjacency, and shared circulation paths to enable incidental encounters and cross-group interaction. By embedding communal facilities within accessible and porous spatial configurations, the building can function as a civic platform where diverse users—families, youth, workers, elderly residents, and informal communities—can simultaneously occupy the same environment without spatial conflict.

Gathering Hotspots: Kopitiam

A defining aspect of everyday life in Batam is the enduring culture of gathering in kopitiams, traditional coffeehouses that reflect the city's social rhythm and cultural hybridity. Originating from the fusion of Malay and Chinese influences, the term kopitiam combines kopi (coffee) and tiam (shop in Hokkien), representing a hybrid establishment that serves both coffee and local dishes. Typically modest and semi-open in design, kopitiams are embedded within neighborhood or commercial clusters, offering affordable meals such as kaya toast, luti gendang, nasi lemak, lontong sayur, and noodles alongside traditional coffee. **Figure 2.8** shows the frequently visited kopitiams in



Figure 2.8
Kopitiams in Batam (from top to bottom: Kedai Kopi Harum Manis, Morning Bakery, Greenland)
Source: Author, 2025

Therefore, the design must consciously adopt principles of localization and everyday familiarity by translating the socio-spatial qualities of the kopitiam into architectural strategies. Rather than positioning the community center as a monumental or overly institutional object, the project should operate as an extension of Batam’s lived urban culture. This involves embracing spatial informality, permeability, and human-scaled environments that encourage prolonged occupation without social or economic barriers. Just as the kopitiam functions as an accessible and grounded social anchor embedded within daily routines, the community center should prioritize openness, visual connectivity, shaded semi-outdoor spaces, and flexible seating configurations that invite spontaneous gathering. Localization in this context is not merely aesthetic replication, but the reinterpretation of behavioral patterns and cultural rhythms into spatial form. By internalizing the kopitiam’s ethos—affordability, hybridity, modesty, and communal intimacy—the architecture can resonate with the collective memory and habits of Batam’s residents. Such an approach ensures that the building feels familiar rather than foreign, participatory rather than prescriptive, and integrated rather than imposed. Ultimately, grounding the design in everyday social practices strengthens its role as a civic platform that reflects and sustains the city’s enduring culture of gathering within an increasingly industrial and urbanized environment.

Gathering Hotspots: Foodcourts

In the context of Batam, food courts serve as one of the most prevalent and accessible social spaces, functioning beyond their primary role as dining venues. Influenced by Singaporean hawker culture due to Batam’s geographical proximity and economic ties to Singapore, these food courts are typically semi-open, affordable, and integrated into commercial or neighborhood clusters. They operate as informal communal hubs where diverse groups — from industrial workers to office employees and families — converge during breaks or after work hours. **Figure 2.9** shows the existence of such establishments in Batam. Unlike the café-centric or street-food typologies more common in Java, Bat-



Figure 2.9
Foodcourts in Batam (from top to bottom): A2 Food Court, Nagoya
Source: Cavin Teo, 2023
https://cavinteo.blogspot.com/2025/05/a2-food-court-batam-island-in-indonesia.html#google_vignette

-am’s food courts reflect a transnational social behavior that emphasizes practicality, collectivity, and shared experience. In this sense, they embody a form of everyday “third place” that facilitates casual social interaction and cultural exchange within a city otherwise dominated by industrial and economic activities. More than dining venues, they function as social anchors — informal spaces where workers, residents, and families gather to converse, rest, and share moments of daily life. This habitual practice illustrates Batam’s collective preference for accessible and grounded forms of socialization, contrasting with the formality of modern cafés and reflecting a continuity of communal culture within an increasingly industrial and urbanized environment.

Gathering Hotspots: Malls and Shopping Centers

Malls have emerged as one of the dominant spaces for social and leisure activities in Batam, reflecting broader patterns of postmodern urban consumption. As Woodward (1998) describes, malls function as dedifferentiated consumption sites—spaces where utilitarian shopping merges with leisure, lifestyle, eating, and entertainment, blurring the boundaries between consumption and social interaction. In Batam, this phenomenon is particularly visible through the presence of sixteen major malls across the city, including Nagoya Hill Superblock, Grand Batam, Batam City Square (BCS), and Mega Mall Batam Center (Wikipedia, 2017) which are shown on **figure 2.10**. These malls serve not only as retail destinations but also as climate-controlled environments offering food, play, and recreation, making them attractive to families and individuals seeking comfort and convenience.

As one local visitor noted, “Everything is here — food, clothing, and children’s playgrounds,” highlighting the mall’s multifunctional appeal. The preference for malls over outdoor recreational spaces is further reinforced by Batam’s tropical climate and the limited availability of public parks. Observations show that during weekends, these spaces are consistently crowded, suggesting that malls have become the city’s de facto “third places” — privately owned yet publicly frequented social environments that fulfill residents’ needs for gathering, leisure, and recreation in the absence of accessible public alternatives.



Grand Batam Mall
Source: <https://grandbatam.com/>



Mega Mall Batam Center
Source: https://www.tripadvisor.co.id/LocationPhotoDirectLink-g3477616-d4367392-i357635194-Mega_Mall_Batam_Centre-Batam_Center_Batam_Riau_Archipelago_Riau_Islands.html



Nagoya Hill Superblock
Source: https://id.wikipedia.org/wiki/Nagoya_Hill_Superblock



BCS Mall Batam
Source: https://www.batamnews.co.id/berita-24380-manajemen-bcs-mall-minta-maaf-ke-penumpang-taksi-online-yang-syok.html#google_vignette

Figure 2.10
Malls and Shopping Centers in Batam
(from top left to right: Grand Batam Mall, Mega Mall Batam Center, Nagoya Hill Superblock, BCS Mall Batam)

Source: Grand Batam, 2025; TripAdvisor, 2025; WikiMedia, 2010; Aditiya (2010)

Therefore, while malls have successfully positioned themselves as Batam’s contemporary “third places,” their fundamentally commercial and privatized nature reveals the need for a civic alternative that can provide similar spatial comfort and multifunctionality without reducing social interaction to consumer participation. The design of the community center should thus critically reinterpret the spatial logic of the mall—its climatic responsiveness, programmatic hybridity, and convenience—while detaching it from purely consumption-driven motives. By offering shaded, climate-conscious, and programmatically diverse spaces that remain publicly accessible and non-exclusive, the project can function as an inclusive civic counterpart to the mall. In doing so, the architecture shifts the locus of gathering from privatized commercial interiors to a socially grounded public infrastructure, reclaiming the role of the “third place” as a genuinely communal environment rather than a byproduct of retail consumption.

Statistical Overview of Leisure Activities

Figure 2.11 shows the statistical trends from 2021 to 2024 reveal a dynamic shift in the development and popularity of various art groups. Overall, the total number of groups increased from 97 to 121, indicating a growing vibrancy in local cultural activities. However, this growth is not evenly distributed across categories.

Traditional dance, vocal groups, and painting groups show noticeable declines, with painting experiencing the most significant drop, suggesting waning interest or limited program support for visual arts. In contrast, traditional music demonstrates a remarkable surge—from only one group in 2021–2022 to thirty-two by 2024—reflecting a strong revival of cultural heritage practices and possibly new institutional encouragement.

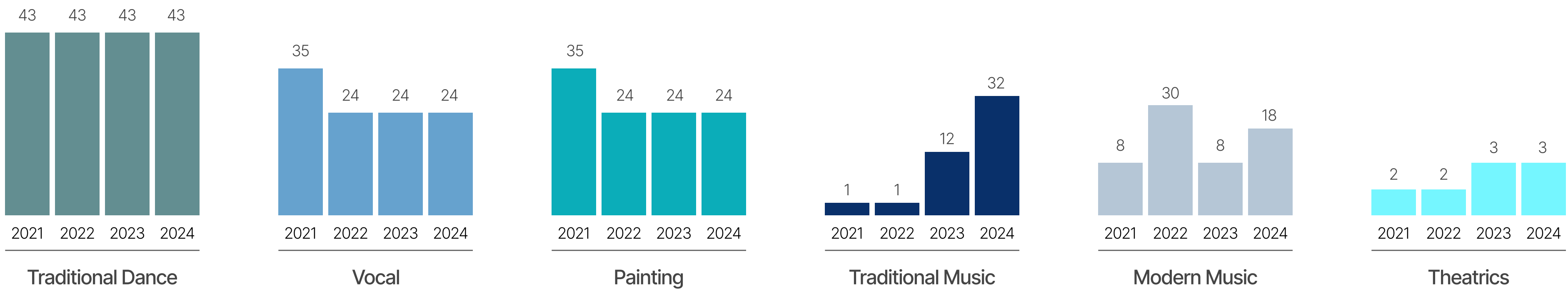


Figure 2.11: Number of Active Art Groups (2021-2024)
BPS (2024) edited by Author

Modern music groups exhibit sharp fluctuations, pointing to trend-dependent participation, while theatre remains consistently low, indicating niche but stable engagement. Collectively, these shifts illustrate evolving artistic preferences within the community and highlight areas where cultural policies or facility planning may need to adapt, particularly in strengthening underrepresented art forms while supporting the momentum of emerging ones.

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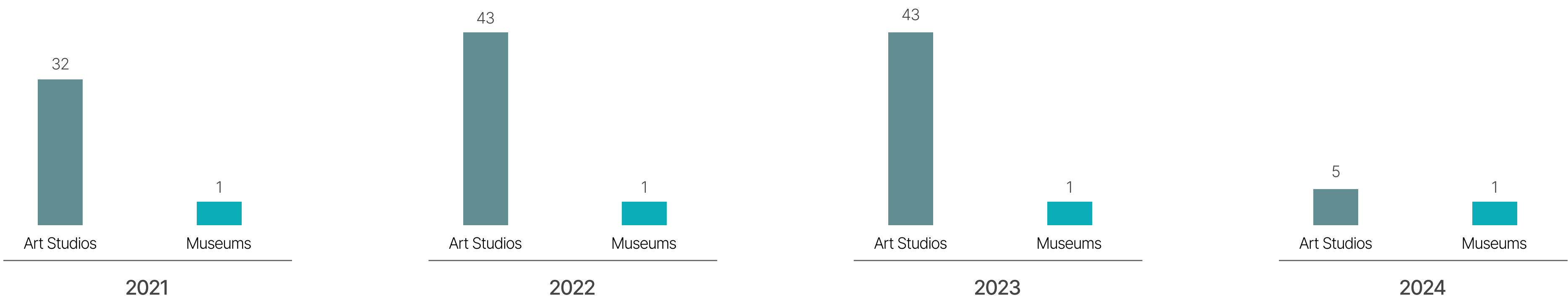


Figure 2.12: Number of Art Facilities (2021-2024)
BPS (2024) edited by Author

Figure 2.12 shows there was a steep decline of 88.37% in the number of Art Studios (Sanggar Kesenian) from 43 in 2023 to just 5 in 2024. A large number of studios may have closed down or lost their official registration status between the end of 2023 and 2024. The number of Museums remained absolutely constant at 1 throughout the entire four-year period (2021–2024). For a major urban area like Batam, having only one museum is indeed highly disproportionate to the size, population, and economic activity of the city. This suggests a significant gap in cultural infrastructure dedicated to historical and academic preservation.

Figure 2.13 shows that the total number of 55 sports activities has remained unchanged, strongly indicating a system operating at or near its maximum operational capacity. This plateau suggests structural limitations rather than a stable equilibrium. The consistency of this figure over time implies that the expansion of sports programs is constrained not by a lack of public interest, but by fixed budgetary allocations, administrative limitations, and—most critically—insufficient physical infrastructure to accommodate additional activities. When facilities, courts, fields, and supporting amenities are already fully scheduled or spatially restricted, the possibility of introducing new disciplines, increasing participation quotas, or extending operational hours becomes severely limited.

Such rigidity creates a systemic bottleneck in the development of community-based sports culture. It restricts opportunities for youth engagement, limits pathways for talent development, and reduces accessibility for emerging or non-mainstream sports. Over time, this infrastructural stagnation risks discouraging participation and weakening the broader public health and social cohesion benefits associated with organized physical activity. In an urban context like Batam—characterized by rapid growth and a predominantly working-age population—the inability to scale sports infrastructure proportionally to demographic expansion reflects a critical mismatch between spatial provision and social demand.



Figure 2.13: Number and Types of Sport Activities in Batam per Semester (2023)
BPS (2023) edited by Author

Table 2.1 shows the statistics confirm that Batam City's sports infrastructure is currently static and operating at a fixed capacity. The total of 520 facilities has not increased over the period, which is the fundamental limiting factor preventing the expansion of organized sports events (which also remained static at 55). Sports like Tennis (7 courts) and Basketball (8 courts), which require specialized infrastructure, are severely limited. This means citizens interested in these specific fitness activities fa-

-cehigher competition for usage, potentially higher costs (if private), and restricted access, effectively limiting diversity in public fitness choices. Low Water Sports Opportunities: The 32 Swimming Pools are a relatively low number for a large urban center, suggesting that aquatic fitness—a key area for low-impact exercise and therapy—is not widely accessible to all parts of the population.

Component	2023 Semester 1	2024 Semester 1
Sports Hall	105	105
Swimming Pool	32	32
Basketball Court	8	8
Volleyball Court	148	148
Badminton Court	23	23
Futsal Court	23	23
Multipurpose Court	148	148
Tennis Court	7	7
Billiard House	8	8
Martial-Arts Facility	6	6
Football Stadium	12	12
Amount	520	520

Table 2.1: Number of Sports Facilities in Batam per Semester (2023-2024)
BPS (2024) edited by Author

The data implies that while Batam City has a strong, consistent base of flexible facilities to support basic, high-volume community fitness (like volleyball and multi-purpose use), the overall static state of infrastructure acts as a structural constraint on expanding public fitness opportunities and diversifying citizen engagement. This stagnation limits the city's ability to drive a significant, measurable increase in the overall physical well-being of its population through new formal sports activities.

Table 2.2 reveals that the total number of sports clubs in Batam decreased slightly from 232 in Semester 1 of 2023 to 227 in Semester 1 of 2024, reflecting a modest decline of five clubs (approximately 2.16%). While numerically small, this reduction is significant when considered alongside the broader pattern of stability across nearly all categories. The overwhelming majority of sports—football (34), volleyball (30), futsal (20), takraw (20), badminton (19), swimming (18), archery (18), basketball (14), cycling (14), tennis (14), table tennis (15), and martial arts (2)—show no change at all between the two semesters. The only category experiencing decline is billiards, which drops from 14 to 9 clubs and solely accounts for the overall decrease. Meanwhile, bodybuilding and bowling remain at zero in both periods, indicating either a lack of formalized club registration or the absence of supporting facilities for these sports. What is most striking about this dataset is not the mar-

-ginal decline, but the near-total rigidity of the distribution. The consistency across categories suggests that Batam’s organized sports ecosystem is not dynamically expanding in response to population growth, youth interest, or shifting recreational trends. Instead, it appears to be operating within a fixed infrastructural and administrative ceiling. Sports that require substantial physical infrastructure—such as football fields, volleyball courts, swimming pools, and futsal arenas—remain numerically constant, implying that existing facilities are fully allocated and unable to accommodate additional clubs without spatial expansion. The absence of growth across emerging or lifestyle-oriented sports further reinforces the notion that diversification is limited by structural constraints rather than by demand. In a rapidly ur-

Component	2023 Semester 1	2024 Semester 1
Billiard Club	14	9
Bodybuilding Club	0	0
Basketball Club	14	14
Volleyball Club	30	30
Bowling Club	0	0
Badminton Club	19	19
Futsal Club	20	20
Archery Club	18	18
Swimming Club	18	18
Football Club	34	34
Takraw Club	20	20
Cycling Club	14	14
Tennis Club	14	14
Table Tennis Club	15	15
Fighting/Martial Arts Club	2	2
Amount	232	227

Table 2.2: Number of Sport Club in Batam per Semester (2023-2024)
BPS (2024) edited by Author

-banizing and industrializing city like Batam, where demographic growth and a predominantly working-age population suggest increasing demand for recreational and health-oriented activities, such stagnation indicates a mismatch between social potential and spatial provision. The data implies that the bottleneck lies not in community interest but in facility availability, funding structures, and the lack of multipurpose or adaptable venues. Without new infrastructural strategies—such as shared-use courts, convertible halls, extended-hour operations, or integrated community sports facilities—the city risks maintaining a static cap on sports participation. Over time, this rigidity could limit youth development pathways, constrain talent cultivation, and reduce the broader social and public health benefits associated with accessible, organized sports.

Transport and Mobility Patterns

The Trans Batam E-Ticketing data in **figure 2.14** shows an extraordinary surge in recorded passengers, rising from 1,103 in 2023 S1 to 128,131 in 2024 S1 (over 11,500% increase). This massive leap primarily reflects the successful, large-scale implementation and mandatory adoption of the cashless e-ticketing system, moving riders from cash to digital records. This validates the modernization effort and proves the public transport service is a utilized alternative for over 128,000 trips/passengers. However, despite this success, the city's high overall dependency on private vehicles likely persists because the current Trans Batam system, while digitized, still lacks the comprehensive route network and frequency needed to fully shift the majority of commuters away from personal cars and motorcycles.

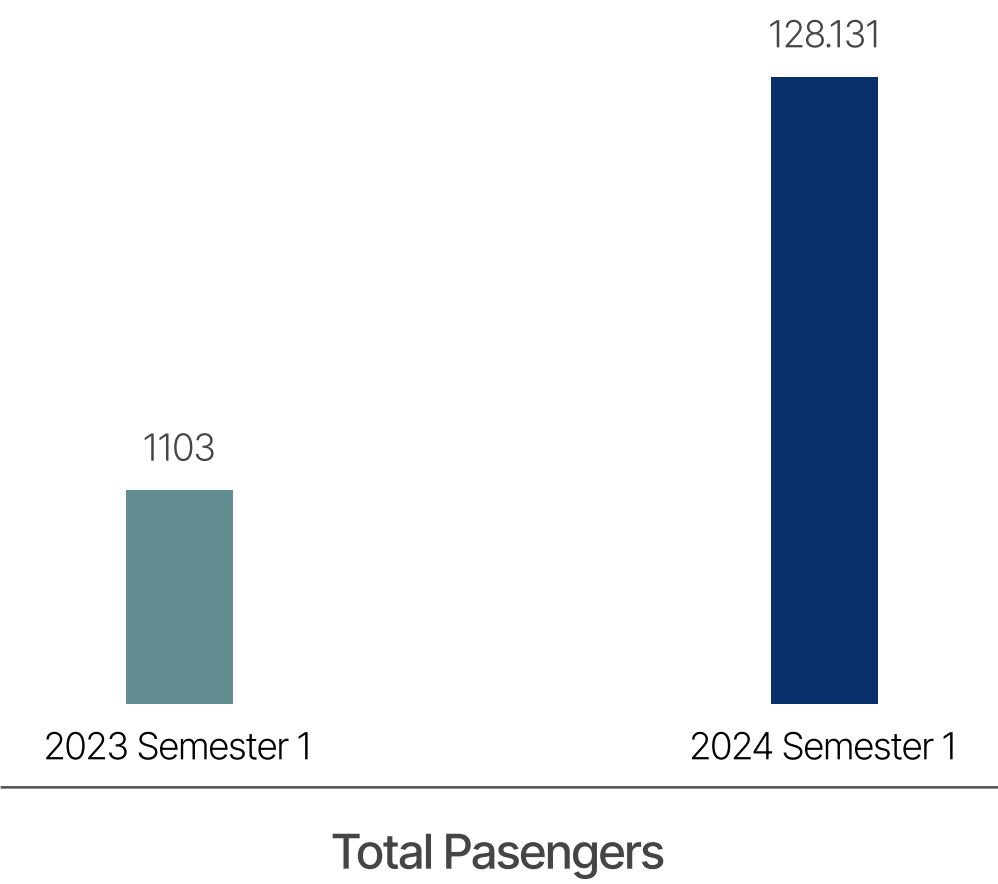


Figure 2.14: Trans Batam Passengers Per Semester by E-Ticketing (2023-2024)
BPS (2024) edited by Author

The motorized vehicle statistics for Batam City in April 2025 shown on **figure 2.15** demonstrate a state of extreme dependency on private transport, with motorcycles (880,710 units) and passenger cars (179,410 units) collectively accounting for over 96% of the 1.1 million registered vehicles. This entrenched pattern directly validates the inference that high private vehicle reliance persists, effectively overwhelming the minimal public transport infrastructure. The small fleet of only 1,786 registered buses is structurally insufficient to compete with the sheer volume of personal vehicles, confirming that Batam's primary mode of mobility is personalized and contributing significantly to traffic congestion and the need for long individual working hours. The high dependency on private vehicles eliminates incidental physical activity—the walking one does naturally during a day (walking to the office, walking to the market, walking to the bus stop). This loss of daily, functional walking contributes to a lower overall physical activity level for the population outside of dedicated exercise time.

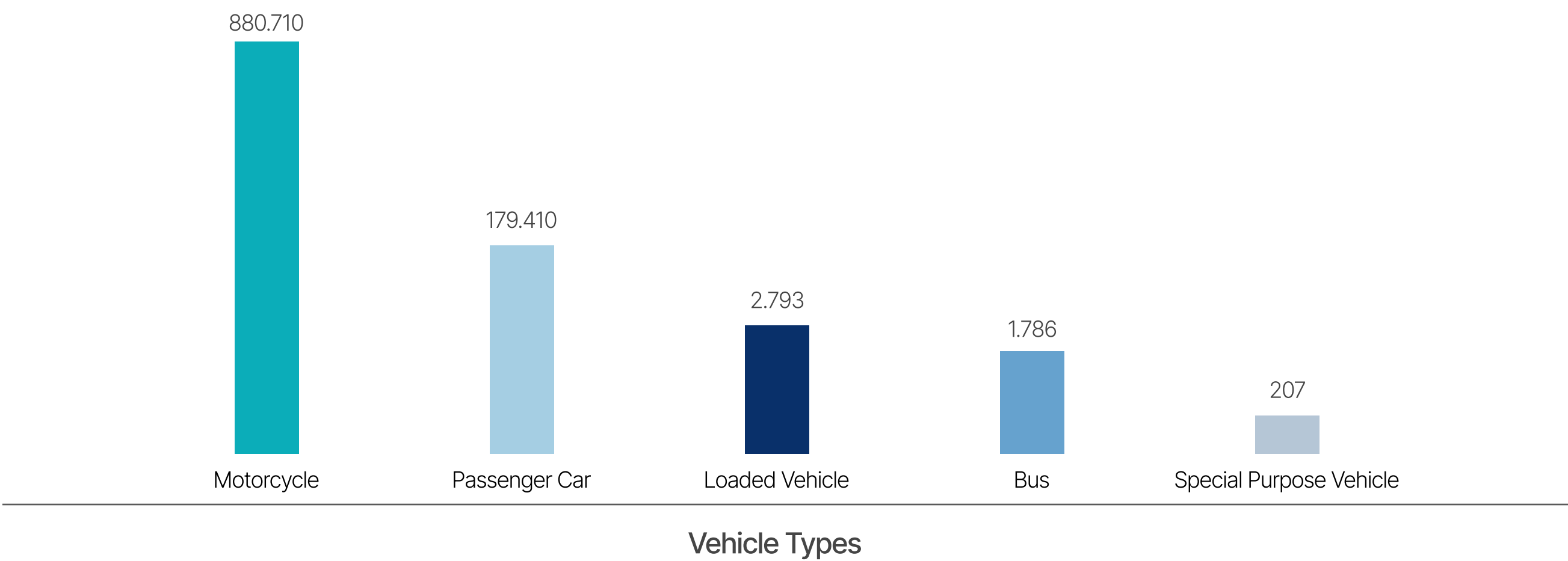


Figure 2.15: Number of Motor Vehicles in Batam City (Electronic Registration and Identification (ERI)) - Indonesian Police Traffic Corps April 2025
BPS (2024) edited by Author

Ethnicity and Religion Spread

Based on population data from 2000, Batam's population consists of various ethnic groups, with **Malays forming the largest share at 26.78%, followed by Javanese (17.61%), Batak (14.97%), Minangkabau (14.93%), and Chinese (6.28%)**. In addition to these recorded groups, Batam accommodates a noticeable expatriate population observed through everyday urban activities, although this presence has not yet been formally documented in government statistics due to the unavailability of official data. This ethnic diversity is primarily the result of continuous inward migration, occurring steadily each year in response to the city's industrial and economic opportunities. **Figure 2.16** shows the existence of major worship places from multiple religions in the city highlighting the diverse spread of such aspect.



Maha Vihara Duta Maitreya Temple
Source: https://www.tripadvisor.co.id/LocationPhotoDirectLink-g297717-d8036276-i314223444-Batam_Private_Driver-Batam_Riau_Archipelago_Riau_Islands_Province.html



Masjid Agung Batam Center
Source: <https://batampos.jawapos.com/infokota/2424741670/revitalisasi-masjid-agung-batam-center-dijadwalkan-rampung-akhir-agustus>



St Petrus Church
Source: <https://www.tempatwisata.pro/wisata/Gereja-Katolik-St-Petrus>



Pura Agung Amertha Buana
Source: <https://www.indonesia.travel/gb/en/destination/sumatra/riau-islands/pura-agung-amerta-bhuana/>

Figure 2.16
Places of Worship in Batam
(from top left to right: Maha Vihara Duta Maitreya Temple, Masjid Agung Batam Center, St Petrus Church ,Pura Agung Amertha Buana)

Tripadvisor (2025), Batam Pos (2024), Fians Dotid (2023), Travel Indonesia (2023)

In terms of religious composition, data compiled in 2023 indicate that **Islam is the predominant religion, practiced by 71.96% of the population. This is followed by Protestant Christianity at 17.81% and Buddhism at 6.75%**, reflecting the city's broader multicultural and multi-religious character.

Industrial-Led Urban Development

Batam's industrial development has significant implications for two key urban aspects: urban morphology and social dynamics. In terms of urban morphology, industrial-led growth shapes the city's physical form, including building typologies, infrastructure networks, and land-use patterns that prioritize production and efficiency. At the same time, this development model strongly influences how the population operates socially, defining everyday routines, movement patterns, and modes of interaction. **Figure 2.17, 2.18 , 2.19** shows the major industrial zones and estates and its surrounding urban context revealing how such development dictates the growth of at least its surrounding areas. The social dynamics of industrial cities such as Batam tend to face challenges commonly observed in comparable contexts like Shenzhen and Johor Bahru. Migration-driven and labor-dominated demographics, when combined with rapid urbanization, naturally create conditions that encourage social segmentation. These conditions often manifest as class-based divisions, cultural fragmentation, and the formation of enclaves structured around workplace affiliation, geographic origin, and income level.



Figure 2.17
Batamindo Industrial Park, Muka Kuning

Google Earth (2025), Edited by Author



Figure 2.18
Kabil Integrated Industrial Estate

Google Earth (2025), Edited by Author

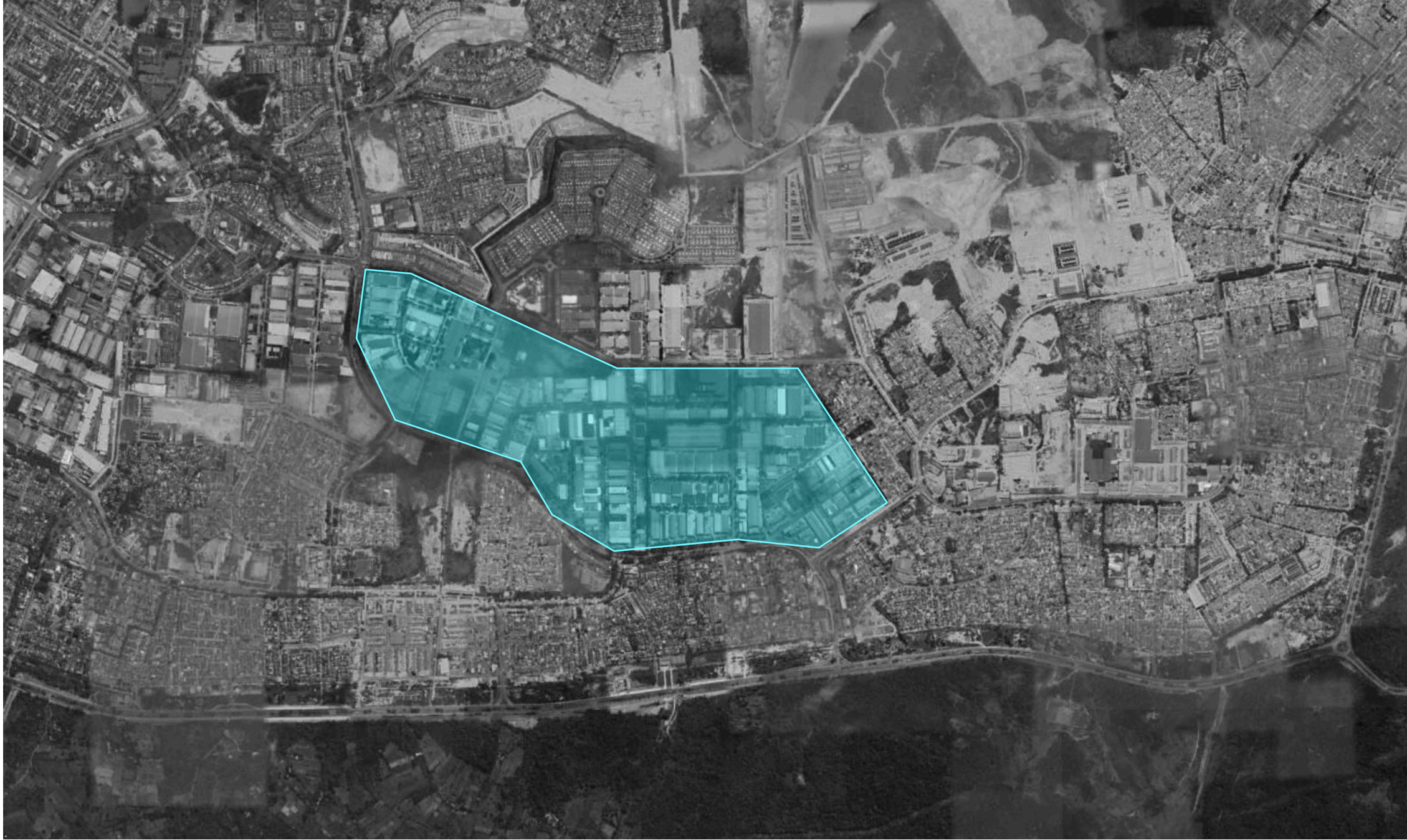


Figure 2.19
Tunas Industrial Estate

Google Earth (2025), Edited by Author

Such tendencies are further exacerbated by the limited availability of public infrastructure that facilitates interaction across different social groups. In the current urban condition, leisure and social activities are largely concentrated in retail-oriented environments such as shopping malls, food and beverage venues, and commercial entertainment spaces. These environments are commonly described in sociological discourse as “privatized social spheres,” where access, participation, and social interaction are mediated by consumption rather than civic engagement. If public leisure infrastructure does not grow proportionally with urban and population expansion, several social consequences are likely to emerge. These include class-based gaps in access to leisure and social spaces, the development of parallel lifestyles among different social groups, and a reduction in shared civic experiences that bring diverse communities together. These aspects are critical to urban life as they directly relate to social cohesion, defined as the degree of connectedness and solidarity among groups within a society. Social cohesion is commonly understood through two main dimensions: the quality of relationships among community members and a shared sense of belonging to the city. Together, these dimensions shape how inclusive, resilient, and ultimately livable a city becomes.

Social Cohesion and Social Capital

Social capital plays a significant role in development processes by facilitating access to information, strengthening social cohesion, enhancing civic engagement, reducing opportunistic behavior, and encouraging political participation. It is also associated with improved government responsiveness and efficiency, lower transaction costs, greater resilience against risk and uncertainty, and more effective solutions to collective action problems.

Despite its wide application, the concept of social capital is not without limitations. First, there is no universally accepted definition of social capital. Second, there is no unanimous agreement on the existence of a positive relationship between social capital and development outcomes. Even where such a relationship is identified, questions remain regarding the direction of causality, namely whether social capital leads to development or whether development itself fosters social capital. A further challenge lies in the lack of consistent empirical evidence, making the concept difficult to measure and operationalize.

From a development economics perspective, social capital serves as a framework to incorporate socio-cultural factors into explanations of development outcomes. Although definitions vary, a broad understanding of social capital describes it as a multidimensional phenomenon encompassing a stock of social norms, values, beliefs, trust, obligations, relationships, civic engagement, information flows, and institutions. Together, these elements foster cooperation and collective action for mutual benefit, thereby contributing to both economic and social development.

In addition, many scholars emphasize the central role of social networks within social capital and highlight the importance of preserving and strengthening these networks over time. While definitions differ in emphasis, their common thread lies in the recognition that social relations generate tangible benefits. The primary distinction among interpretations of social capital concerns whether it is treated as a private resource, benefiting individuals, or a collective resource, benefiting society as a whole.

Social capital is maintained and reinforced as long as members continue to invest in social relationships; therefore, participation and involvement are central to the concept of social capital. This participatory dimension is often referred to as civic virtue, commonly reflected in the number of civic associations within a society and the degree of individual participation in those associations. Together, these indicators signal the richness of social capital in a given context.

One of the most straightforward approaches to measuring social capital was proposed by Francis Fukuyama, who identified it through a simple yet powerful indicator: the proportion of people who believe that most others can be trusted. This measure highlights trust as a foundational element of social capital.

The wide variation in definitions of social capital does not stem from a lack of conceptual clarity, but rather from its multidimensional nature (see figure 2.20). As a result, social capital has been categorized in the literature through several complementary frameworks, including:

Structural and cognitive social capital

Bonding, bridging, and linking social capital

Strong and weak social ties

Horizontal and vertical social capital

Cognitive social capital primarily consists of shared norms, values, attitudes, and beliefs related to trust, reciprocity, and cooperation. In contrast, bonding social capital refers to close ties among individuals who know one another well, such as immediate family members, close friends, and neighbors. These relationships typically exist among people who are similar in key characteristics such as class, race, ethnicity, education, age, religion, gender, or political affiliation. Bonding social capital is generally inward-looking and protective in nature, relying on strong communication and close relationships to pursue common goals.

Bridging social capital, on the other hand, involves more distant connections, such as loose friendships and workplace relationships. Unlike bonding ties, bridging ties connect individuals who differ across key personal and social characteristics. This form of social capital is outward-looking and civically engaged, helping to narrow gaps between communities through open membership and inclusive interaction. Bridging social capital plays a crucial role in solving shared problems by enabling people to build relationships, exchange information, and mobilize collective resources.

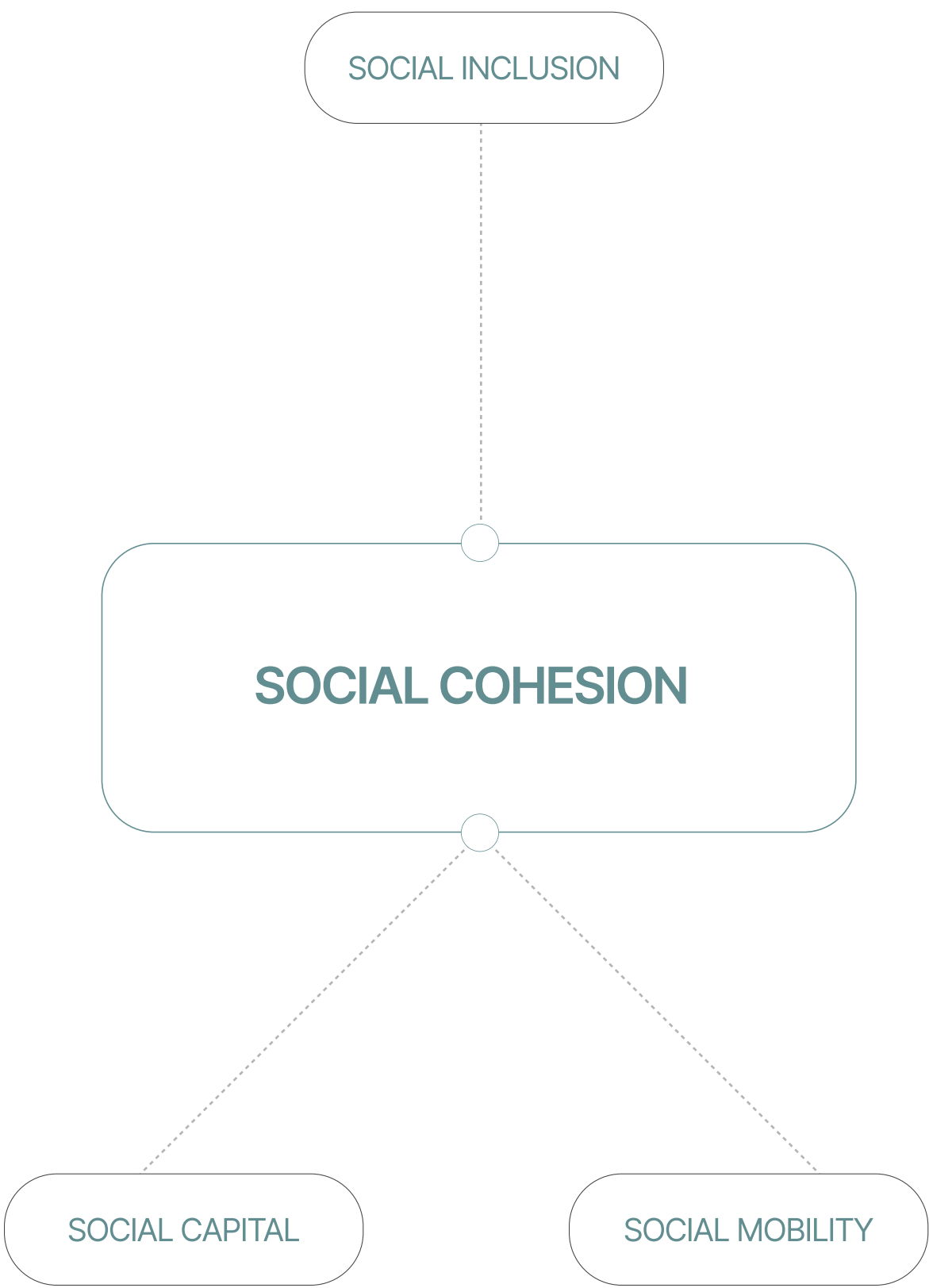


Figure 2.20
Components of Social Cohesion, OECD
(2011) Edited by Author

The benefits of bridging ties across diverse social divides are significant, as they provide access to broader institutional networks and systems, allowing individuals and communities to leverage a wider range of available resources.

Social capital can also be differentiated based on the strength of social ties. Strong ties are close, persistent, and binding relationships, while weak ties are more casual, temporary, and contingent in nature. Weak ties are often formed among individuals from different backgrounds or social niches and are particularly common in diverse populations. Although weaker in emotional intensity, weak ties often provide more pragmatic benefits, such as access to new information and opportunities, compared to strong ties.

Finally, social capital can be analyzed across different spatial and social scales, namely the micro, meso, and macro levels. At the micro level, social capital focuses on norms, values, and horizontal relationships among individuals. The meso level emphasizes communities, groups, institutions, and organizations, extending into networks of vertical relationships and associations that facilitate interaction among groups, communities, firms, and non-governmental organizations. This meso-level perspective is particularly relevant in understanding how social capital operates within urban and institutional contexts.

Social Cohesion and its Relation with Urban Public Space

Social cohesion is a desirable characteristic of a well-functioning society and is widely adopted as a key instrument for addressing social fragmentation. It characterizes a social environment shaped by interpersonal relationships and collective efforts, both of which are closely associated with positive social interaction and mutual trust.

The benefits of strong social cohesion include the preservation of resilient and functional communities, the promotion of human health and well-being, the maintenance of a high quality of life, and the effective management of urban population growth and long-term sustainability.

There is broad agreement that urban design and planning play a crucial role in fostering social cohesion. Public spaces enable everyday engagement through cultural activities and informal social interactions, encouraging physical co-presence and conviviality. These conditions are fundamental to strengthening social capital and building community ties across diverse social groups.

Before establishing a relationship between public space and social cohesion, it is essential to first define the concept of public space itself. In their study, Qi, Mazumdar, and Vasconcelos (2024) describe public space—drawing upon multiple theoretical perspectives—as a shared democratic ground and a setting of the public sphere that allows for casual encounters and social exchange among people of different races, ethnicities, and between locals and strangers.

An important distinction within public space typologies is the concept of semi-public or quasi-public space. Unlike traditional public spaces, these are privately owned environments that are conditionally accessible to the public. Such spaces often include commercial and community-oriented facilities such as cafés, pubs, and community centers, and they play an increasingly significant role in everyday urban life.

Spontaneity is a vital factor in promoting social cohesion. As rapid social and economic change continues to challenge traditional social structures, the need to foster social cohesion becomes increasingly urgent. Spontaneous social encounters—by nature unplanned and inclusive—are particularly important in ethnically diverse cities, where they facilitate social integration, strengthen community bonds, and support long-term urban

The Kind of Public Spaces Relating to Social Cohesion

Public spaces located in the city center plays a role in establishing social norms, providing soqcial equity and fostering social inclusion and participation, However, note that such positive relationsbp is under the conditions where the phgyscial attributes of public space maximize place value throughout the lives of citizens across all socio economic strata. In the case of public open space too, user's experiences are informed by social infrastructures and functions of public open spaces whilst urban life is enriched with different uses of public open spaces

Social inclusion is more correlated with the actual use of neighbourhood public spaces than the physical presence of such facilities

Social Cohesion and its Relation with Urban Public Space

Accessibility constitutes one of the most fundamental physical attributes of public space, as it determines who can enter, move through, and meaningfully occupy a shared environment. Beyond mere physical entry, accessibility encompasses spatial legibility, connectivity to transportation networks, walkability, climatic comfort, and the removal of physical and social barriers. When public spaces are easily reachable, safe, and intuitively navigable, they enable individuals from diverse socio-economic, cultural, and generational backgrounds to coexist within the same setting. In this sense, accessibility functions as a prerequisite for participation: without it, engagement remains selective and exclusionary, reinforcing urban fragmentation rather than collective interaction.

Parallel to accessibility, the presence of a clear and shared identity within a space plays an equally significant role in fostering social cohesion. Identity provides symbolic and emotional anchorage—it allows users to recognize themselves within the spatial narrative of the city. A public space that reflects local culture, collective memory, or everyday practices cultivates a sense of belonging, which in turn encourages repeated occupation and informal stewardship. When users perceive a space as culturally resonant and socially representative, they are more likely to engage in communal activities, interact with others, and participate in civic life. Thus, while accessibility enables physical presence, identity sustains psychological attachment.

The diagram below (**See figure 2.21-2.23**) are public spaces or parks that exists in threedifferent areas in Batam. Taman Rusa (fig 2.21) located further from neighbourhood areas, Dataran Engku Putri (**fig 2.22**) is the most strategic compared with the other two and finally Taman Dang Anom (**2.23**) that is located next to a freeway.

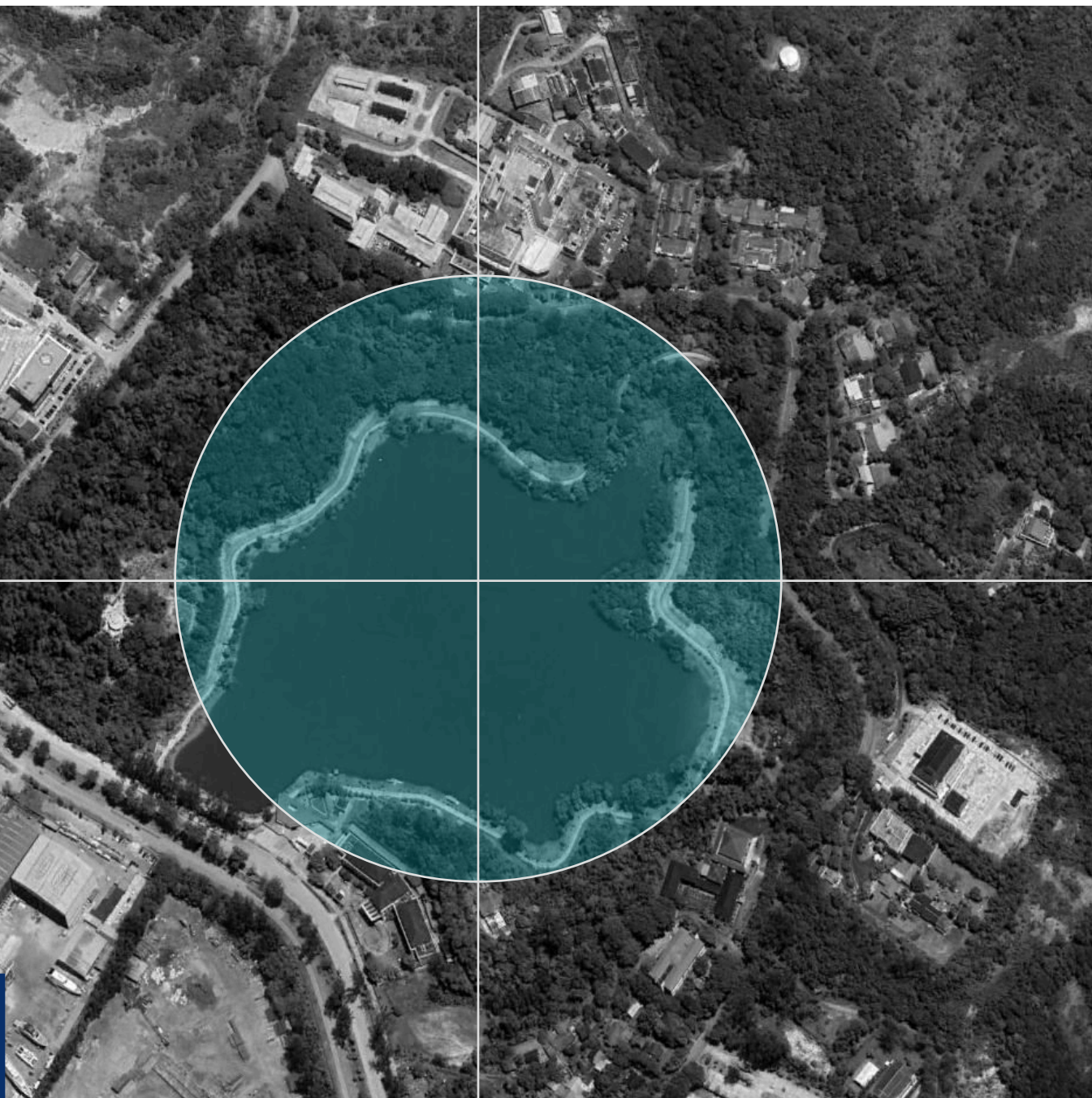


Figure 2.21
Taman Rusa, Sekupang

Google Earth (2025), Edited by Author



Figure 2.22
Dataran Engku Putri, Batam Kota

Google Earth (2025), Edited by Author



Figure 2.23
Taman Dang Anom, Batam Kota

Google Earth (2025), Edited by Author

Together, accessibility and identity form a mutually reinforcing framework for strengthening social cohesion in urban environments. A space that is accessible but devoid of local meaning risks becoming transient and underutilized, while a culturally expressive space that lacks accessibility remains exclusive. **Figures 2.21–2.23** illustrate the existing urban public spaces in Batam, distributed across different regions of the island. Their geographic dispersion highlights the city's fragmented spatial structure, where access to quality public space is unevenly distributed. This condition underscores the need for strategically located, well-connected, and culturally grounded civic infrastructure that not only welcomes diverse users but also reflects Batam's collective character. By integrating physical openness with localized identity, future public spaces can function not merely as recreational areas, but as cohesive social platforms that bridge urban divides and cultivate a shared sense of community.

Implications and Issues

Study Implications

Work-Centric Population Batam is defined by a highly productive, young, and educated workforce. The majority of the population (over 70%) is of working age , is largely employed , and concentrates in the manufacturing and service sectors.
Overworking The most significant behavioral implication is the dominance of long working hours, with 507,009 people working 35 or more hours per week, and the largest group (363,860 people) working 41+ hours. This suggests that economic pressures override work-life balance, resulting in limited leisure time and high demand for efficient, accessible relaxation and socialization.
Diverse Population Batam's heterogeneous population reflects its role as a migrant-driven industrial city, resulting in a wide range of cultural identities and social behaviors. This diversity necessitates inclusive and adaptable communal spaces that can bridge differences, support everyday interaction, and strengthen social cohesion beyond occupational ties.

Discovered Issues

Deficient Public Space Infrastructure The city lacks essential public alternatives, leading to the designation of privately-owned spaces (Malls) and semi-open commercial spaces (Kopitiams, Food Courts) as the de facto common ground socializing and leisure. Formal cultural infrastructure is critically low, marked by a constant single Museum and a dramatic decline in Art Studios.
Stagnant Civic and Leisure Opportunities The civic infrastructure for sports and recreation is operating at a fixed capacity (520 facilities and 55 events). This stagnation limits the expansion and diversification of public engagement opportunities , particularly for specialized activities like tennis or aquatic fitness.

Directions for Architectural Intervention

Establishing a Middle-Ground Architectural Identity

The architectural form must express a neutral, non-representational identity that mediates between Batam’s diverse demographic groups. Through restrained formal articulation and flexible spatial organization, the building operates as a shared platform that enables cross-group interaction without privileging a singular social or cultural identity.

Cultivating Community and Interaction through Space and Provided Facilities

The framework mandates spatial configurations and the strategic provision of communal facilities that encourage chance encounters and everyday social interaction. By embedding shared amenities within accessible and overlapping spaces, the design mitigates social fragmentation and reduces reliance on commercially driven gathering points.

Positioning the Community Center as a Connector

The proposed architecture should actively seek to position itself as a connector in its urban context to counteract the isolation enforced by vehicle-centric mobility patterns. This involves prioritizing pedestrian access and integrating cultural/leisure programming into the daily routine of the working populace.

3

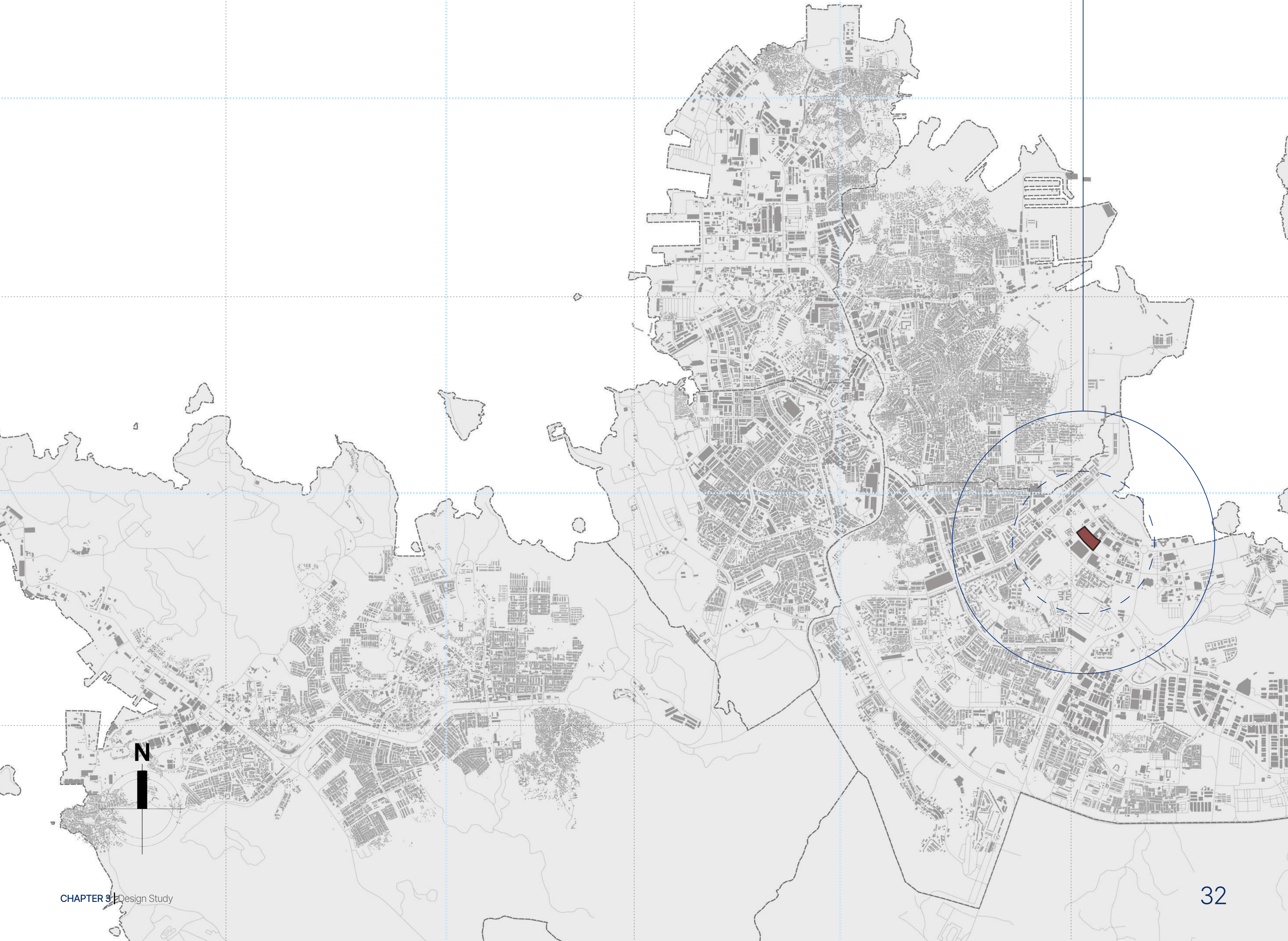
Design
Study

Site Analysis

Figure 3.1
Map of Batam Island

OpenStreetMap (2025), Edited by Author

PROJECT 'S SITE



Site Details

Address

Jl. Engku Putri 12-1, Tlk. Tering, Kec. Batam Kota, Kota Batam, Kepulauan Riau 29444

Area

26,141 sqm
2,6 HA

Zoning Classification

B6.5
Economic, Social, National Defense and Security, and Transportation Area

Building Code

BCR: 60%-75% or higher
FAR: 0.4-6.4
Setbackline:
9m from primary arterial road
6m from sidewalk
GAR: 10% minimum



Figure 3.2
Aerial View of Site in Batam Center

Google Earth (2025), Edited by Author

Site Inventory and Analysis - Built Environment

Land Use and Zoning Classification

According to Land Use Zoning Classification (PERWAL Batam No.22 Year 2017) zoning categories are listed as follows;

- B1: High-density residential area
- B2: Medium-density residential area
- B3: Low-density residential area
- B4: Industrial area
- B5: Tourism area
- B6: Economic, social, national defense and security, and transportation area
- B7: Agricultural area
- B8: Food-crop agricultural area
- B9: Protected cultivation area

The site is located in Zone B6.5, **seen in figure 3.2** designated for education, health, socio-cultural, and research uses. It supports moderate to high-intensity development within a well-serviced urban area while requiring at least 10% green open space and compliance with all standard building coverage, floor area, and setback regulations.

Zone B6, Economic, Social, National Defense and Security and Transportation Area is characterized by:

High environmental and carrying capacity

High quantity of public facilities and infrastructure

Vertical and horizontal buildings with low to high intensity development permitted

Based on the design typology of a community center, the land use falls under the sub-category of Subzone B6.5 - Education, Health, Socio-cultural and research area with the following permitted activities

Education

Health

Socio-cultural activities

Research and technology development

Ownership and Land Tenure

Under Keputusan Presiden Nomor 41 Tahun 1973 (and its amendments) for the pulau Batam Industrial Zone, the land-management rights (HPL) are held by BP Batam. A special land-allocation scheme applies: the land remains under state management (HPL) and the user pays an annual fee called UWT, in accordance with relevant regulations.

The allocation terms as per BP Batam regulations are:

Initial allocation: 30 years

Extension: 20 years

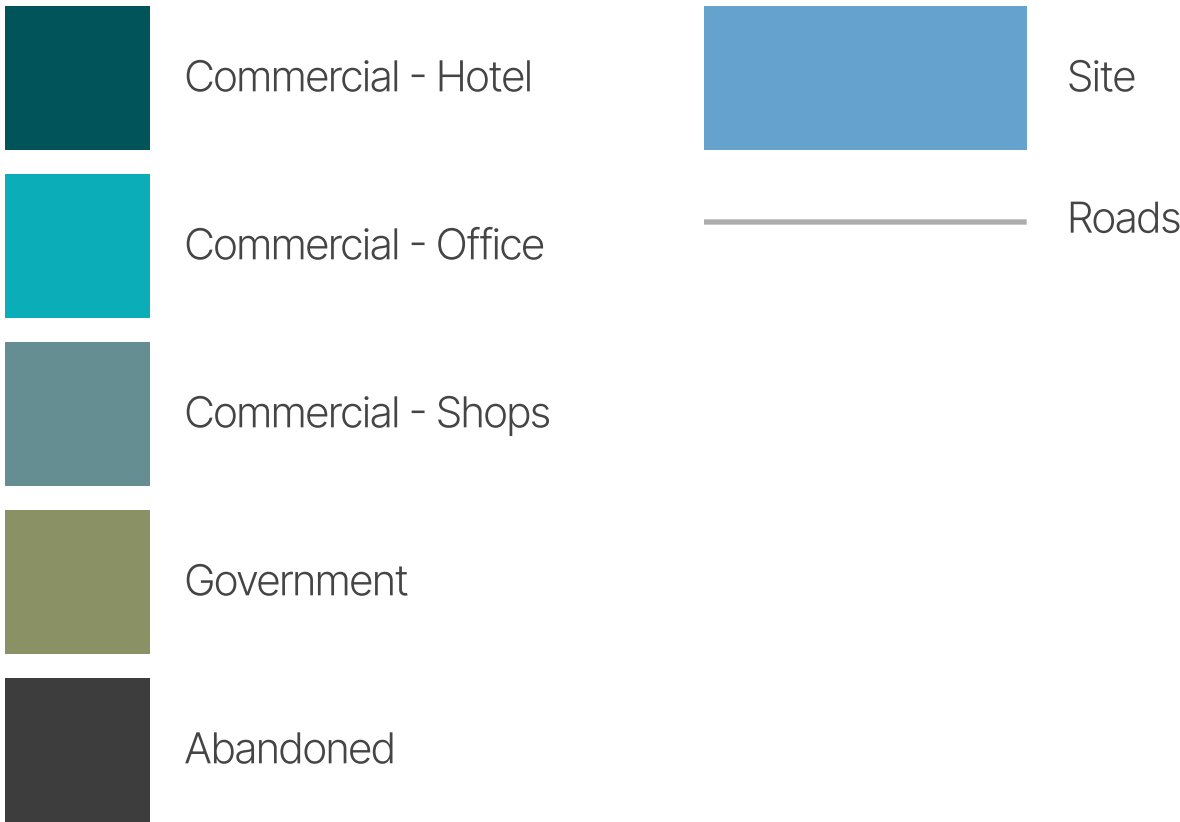
Renewal after extension: 30 Years

Figure 3.3
Surrounding Buildings

OpenStreetMap (2025), Edited by Author



Surrounding Buildings and Classification
1 : 5000



Design Implications

Based on **figure 3.3** The site is predominantly surrounded by commercial establishments, including retail centers, shophouses (ruko), and medium- to large-scale businesses. Several hotels also occupy the vicinity. These existing conditions contribute to moderate to high traffic flow throughout both weekdays and weekends. This level of activity creates a strategic advantage for the proposed community center, positioning it to attract users from the surrounding workforce and nearby visitors. The site's context also supports its potential to serve as an accessible destination for after-work engagement and various recreational activities.



Figure 3.4
Road Hierarchy
OpenStreetMap (2025), Edited by Author

Road Hierarchy
1: 5000

- Secondary Arterial Road
- Collector Road
- Local Road

Design Implications

Based purely on the road hierarchy shown in **figure 3.4**, the design of the community center must strategically manage its dual frontage. The Secondary Arterial Road (dark teal/blue) is for high-speed, high-volume traffic and should be treated as the site's most restrictive boundary. Access here must be minimal and consolidated to prevent traffic hazards, and the building itself should use this edge to locate noise-insensitive functions (like storage or mechanical rooms) or a striking, setback facade designed for landmark visibility. Conversely, the Collector Road (olive green), which handles lower-speed neighborhood traffic, is the ideal and safest location for primary community engagement. The design should concentrate all major visitor activities—the main public entrance, drop-off areas, primary parking access, and pedestrian pathways—along this Collector Road to ensure easy, welcoming, and safe access for the community. The overall goal is to establish a strong functional separation, funneling dense public activity toward the calmer Collector Road while maximizing the visibility and using the restrictive nature of the Arterial Road frontage effectively for building massing and buffering.



Routes and Transportation Networks
1 : 5000

- Pedestrian and Cycling Route
- Trans-Batam Corridor 5
- Trans-Batam Corridor 2
- Trans-Batam Corridor 1

Design Implications

This transportation network illustrated in **figure 3.5** necessitates a design for the community center that is fundamentally transit-oriented and active-transport focused. The presence of the Pedestrian and Cycling Route (yellow-green) requires the main public entrance and site orientation to prioritize non-vehicular access, demanding ample bicycle parking, clear pedestrian pathways, and careful driveway design to minimize user conflict and maximize safety. Furthermore, the numerous Trans-Batam Corridors (magenta/pink) indicate high public transit access, making the site an ideal transit hub; therefore, the design should incorporate comfortable, sheltered bus waiting areas and allow for a potentially reduced reliance on private vehicle parking. Ultimately, the building must utilize its highly visible frontage along these routes to create an engaging, active urban edge, particularly at corners, serving as an accessible destination for walkers, cyclists, and transit users alike.

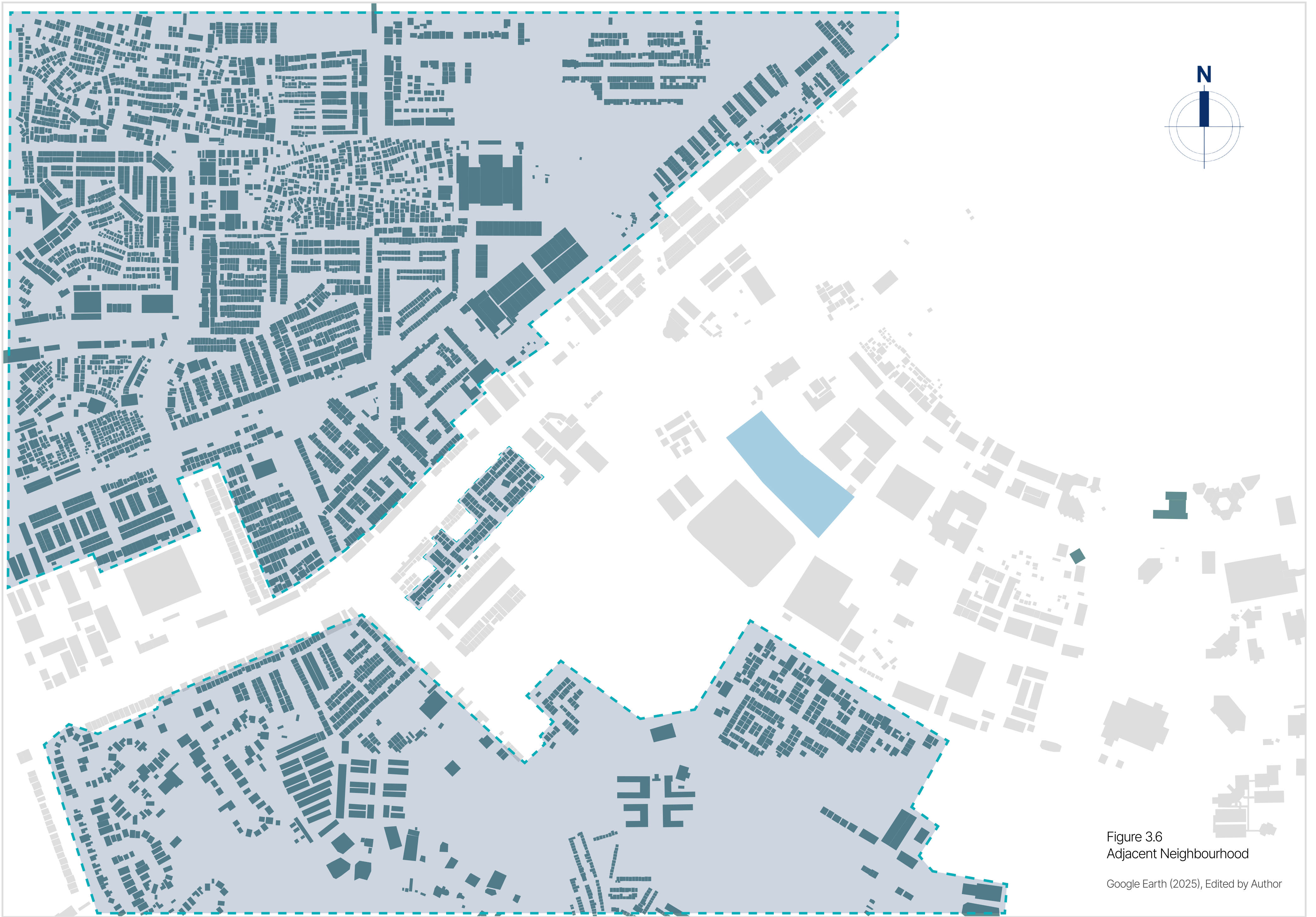
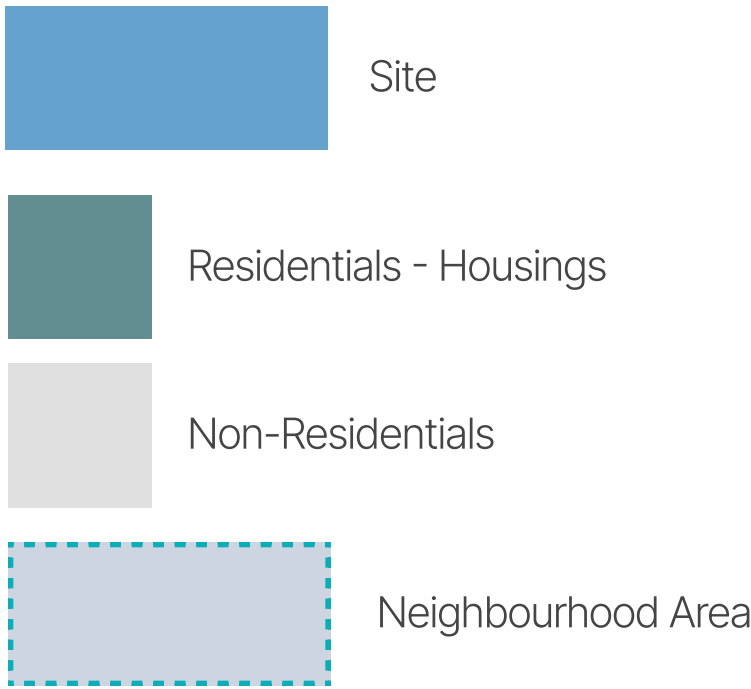


Figure 3.6
Adjacent Neighbourhood

Google Earth (2025), Edited by Author

Adjacent Neighbourhoods

1: 9000



Design Implications

This adjacent neighborhoods diagram shown in **figure 3.6**, spanning a 1.7 km radius, confirms that the community center is situated to serve a very high-density residential population and will experience significant daily user volume. Therefore, the design must prioritize multi-generational program facilities that cater to the comprehensive needs of the immediate neighborhood, functioning as a primary social and civic hub. Given the density of the surrounding housing, the center must also dedicate its required open spaces to highly functional, publicly accessible outdoor amenities like playgrounds and plazas, compensating for limited private space. Finally, the site's location at the transition point between dense housing and non-residential areas requires the architecture to act as a sensitive gateway, while also exploring opportunities for resource sharing or design continuity with the neighboring institutional or commercial facilities.

Sun Path and Solar Radiation Diagram

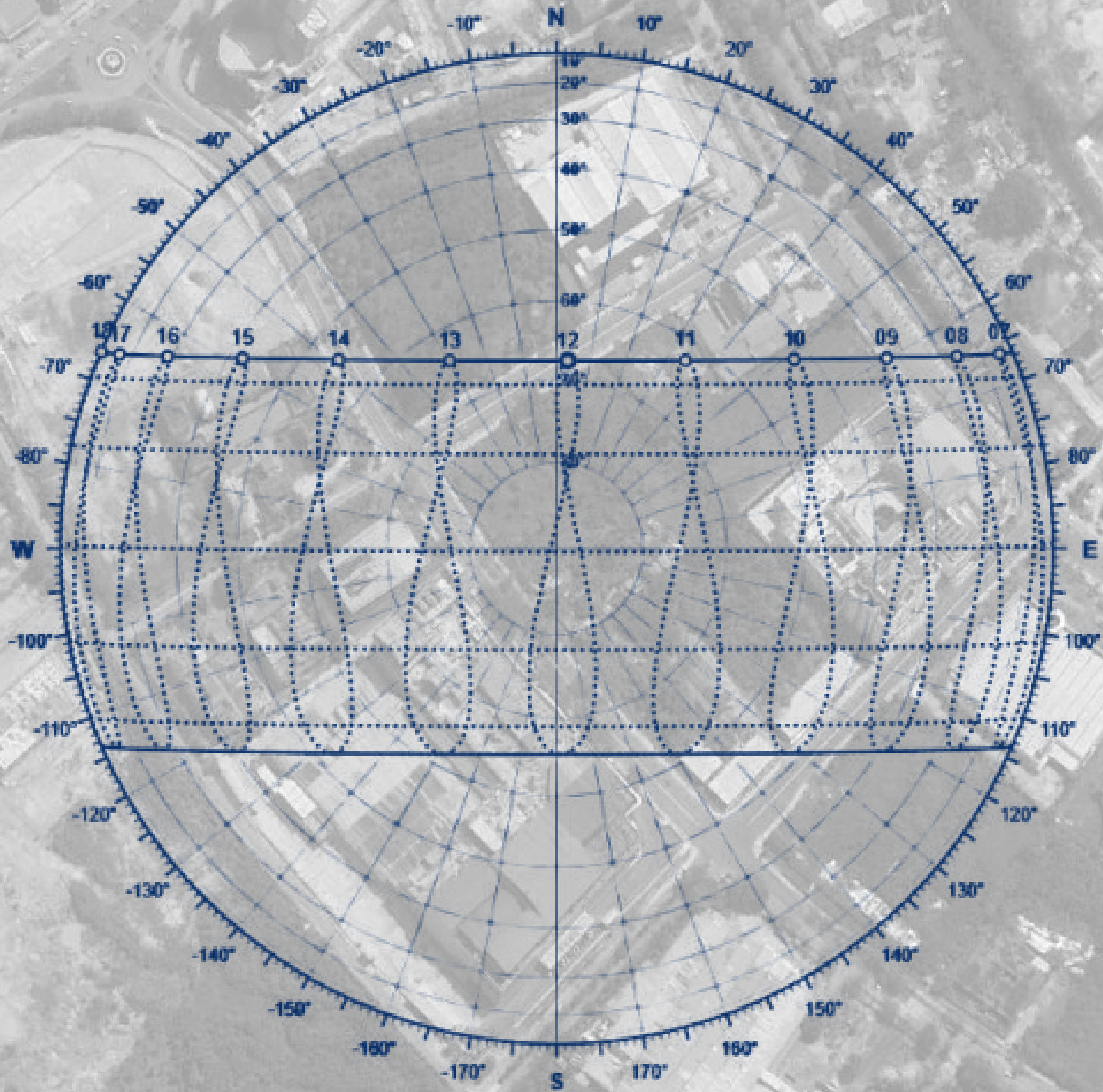


Figure 3.7
Sun Path Diagram

Sun Tool (2025), Edited by Author

Sun Path and Solar Radiation Analysis

The sun path in Batam remains nearly symmetrical throughout the year, with minimal seasonal shifts to the north or south shown on **figure 3.7**. As a result, solar exposure patterns are relatively consistent year-round. In the mornings, sunlight enters primarily from the east–northeast, while in the afternoons it transitions toward the west–northwest. By midday, the sun reaches a position that is almost directly overhead, causing roofs and upper surfaces to receive the highest intensity of solar radiation.

Implications for Building Envelope

East and West Facades

Receive low-angle sunlight in morning and late afternoon resulting in strong glare and heat gain. These facades are the most critical in the equatorial design context hence making it important to protect

North and South Facades

In Batam, these receive more consistent, diffused sunlight throughout the year. It is easier to shade with horizontal devices like overhangs or louvers

Optimal Building Orientation

A long axis oriented east-west building orientation is optimal as it minimizes the facade area facing East and West which in this case, the harshest sun angles. Major opening should face North and South, allowing softer, more controllable daylight.

Batam’s Climate Summary

Batam, Indonesia falls under the Af category in the Köppen climate classification system, stipulating a tropical rainforest climate owing to its geographical position close to the equator. Throughout the year, the island city of Batam presents persistent high-temperature ranges, generally wavering between 25.7°C (78.3°F) in the cooler months to a peak of 31.2°C (88.2°F) during the hotter months.

Substantial rainfall is a predominant characteristic of the climate, with a monthly average from 58mm (2.28") in September to 220mm (8.66") in December. This precipitation is usually concentrated over 20 to 26 days each month, translating into frequent rain showers interspersed with sunshine. On an annual scale, relative humidity remains consistently high, fluctuating mildly from 72% to 79%.

There is transcendent sunlight throughout the year, with daily sunshine hours varying narrowly between 7.5 hours in December and January, and peaking at 10.7 hours in May. Additionally, monthly average daylight hours remain constant at approximately 12 hours. Wind speed varies reasonably over the year, attaining the maximum recorded speed of 14.9km/h (9.3mph) in January and dropping to its lowest average of 8.1km/h (5mph) in April.

Figure 3.8: Daylight Hours and Sunshine Hours in Batam
Meteoblue (2025), edited by Author

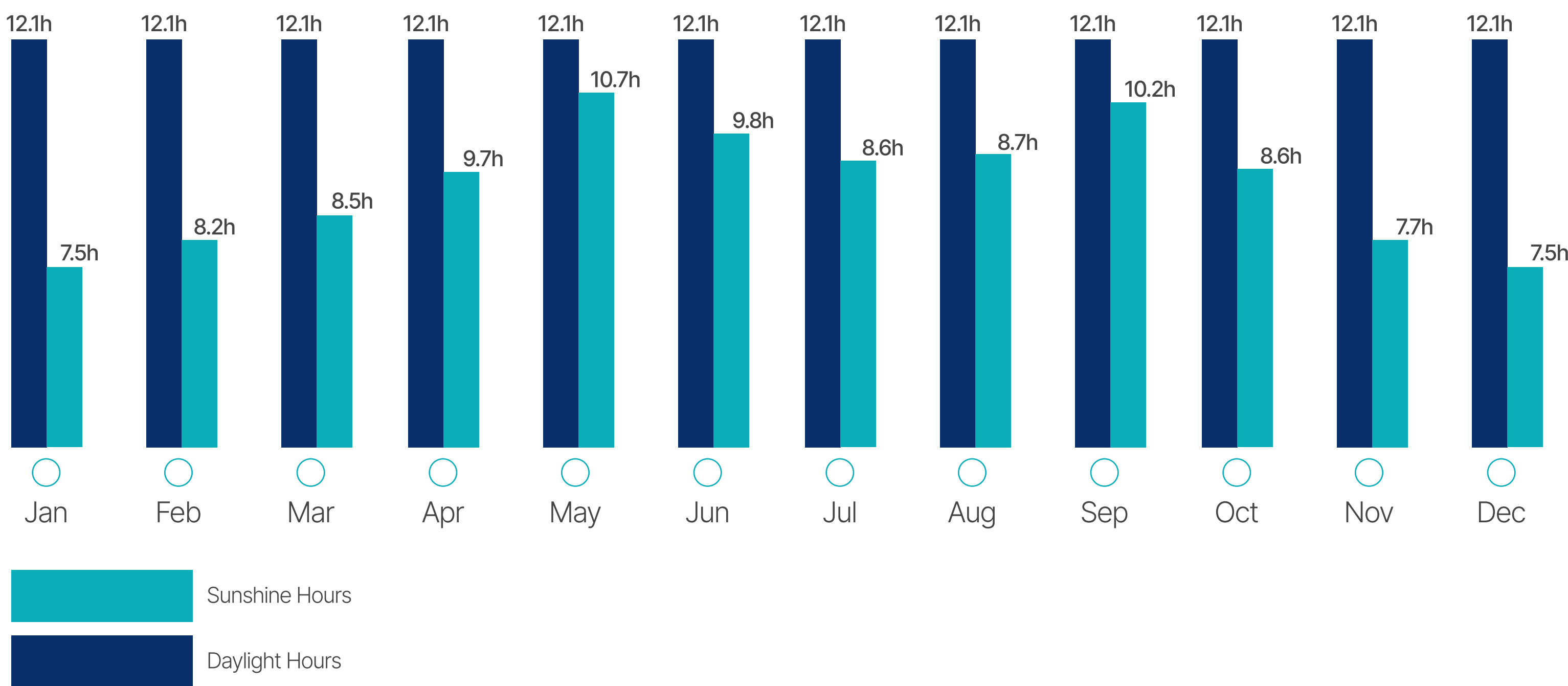


Figure 3.8 demonstrates that Batam experiences a highly consistent daylight duration of approximately 12.1 hours throughout the year, reflecting its equatorial location with minimal seasonal variation. However, while daylight hours remain constant, actual sunshine hours fluctuate between 7.5 and 10.7 hours per day. The peak sunshine period occurs around May (10.7 hours) and September (10.2 hours), whereas lower values appear in January and December (7.5 hours), likely corresponding to periods of increased cloud cover and rainfall. This distinction between daylight and effective sunshine is critical for architectural design, as it indicates that solar exposure is reliable but moderated by atmospheric conditions. The relatively stable sun path, combined with high solar intensity near midday, suggests the necessity for consistent shading strategies, secondary skin systems, and passive cooling mechanisms throughout the year rather than seasonally adjusted solutions. The data reinforces the importance of designing for continuous solar control in Batam's tropical climate, as buildings are subjected to sustained solar radiation with limited seasonal relief.

Figure 3.9: Average Monthly Humidity in Batam
Meteoblue (2025), edited by Author

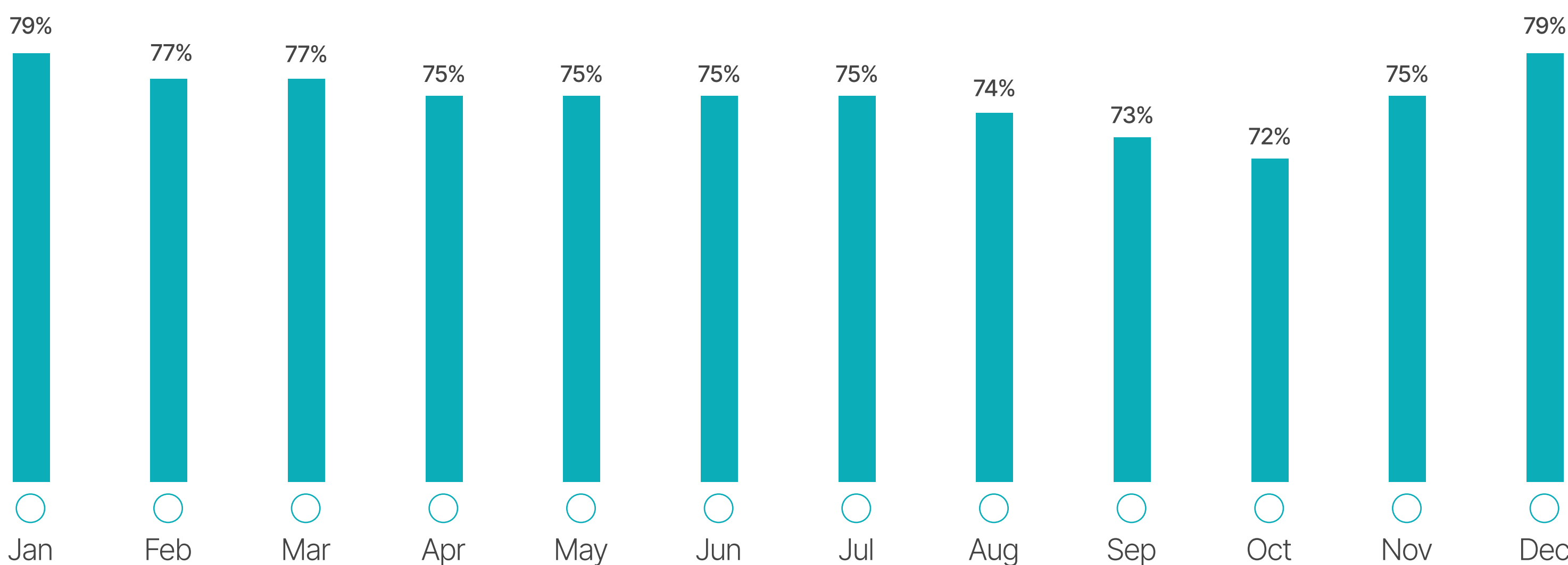


Figure 3.9 shows that Batam maintains consistently high humidity levels throughout the year, ranging from 72% to 79%. The highest humidity occurs in January and December (79%), while the lowest point appears in October (72%), though even this minimum remains significantly elevated. The narrow fluctuation range indicates that humidity is a persistent climatic condition rather than a seasonal anomaly. Such consistently high moisture levels have important implications for material durability, ventilation design, and occupant comfort. High humidity can intensify thermal discomfort by reducing the body's ability to cool through evaporation, thereby increasing reliance on air movement and passive ventilation strategies. Consequently, architectural responses must prioritize cross-ventilation, elevated ceilings, breathable materials, and shaded semi-outdoor spaces to mitigate heat and moisture accumulation. The data underscores that humidity control in Batam is not an occasional design consideration but a constant environmental factor that must be integrated into the building's spatial and mechanical systems.

Wind Rose Diagram



Figure 3.10
Wind Rose Diagram
Meteoblue (2025), Edited by Author

Wind Rose Diagram Analysis

From the diagram in **figure 3.10**, the dominant winds clearly come from the NNE and S indicated by the longest bars and highest frequency of occurrence. The SE-SSE directions also contribute noticeably as secondary wind sources. Overall wind speeds predominantly fall within the 5-20 km/h range, though occasional segments reach 20-30 km/h, with even 30-40 km/h spikes particularly from the NNE direction. This wind behavior is consistent with the climatic patterns of coastal cities like Batam, where airflow is strongly influenced by larger monsoonal systems

Implications for Design

Optimal Building Orientation

Orienting the longer facade facing NNE-SSW will capture dominant winds for natural ventilation. Rotating the massing perpendicular to these directions will reduce wind loads

Cross Ventilation Strategy

Because winds are consistent and moderate hence placing operable windows or ventilation openings on NNE-facing or S-facing facades will optimize cross ventilation scheme. Central atriums, ventilation shafts or perforated corridors aligned with the wind directions are also highly recommended

Landscape and Outdoor Space Design

Outdoor areas intended for gathering should be positioned in locations that are not directly exposed to the stronger NNE or S winds, ensuring comfort and minimizing wind disturbance. To further mitigate exposure, the site edges facing these directions can be equipped with vegetation belts, screens, or windbreak structures. For passive cooling, breezeways or funnel-shaped courtyards can be oriented toward the NNE, allowing prevailing winds to be guided into the site and improving natural ventilation.

Figure 3.11: Average Monthly Wind Velocity in Batam
Meteoblue (2025), edited by Author

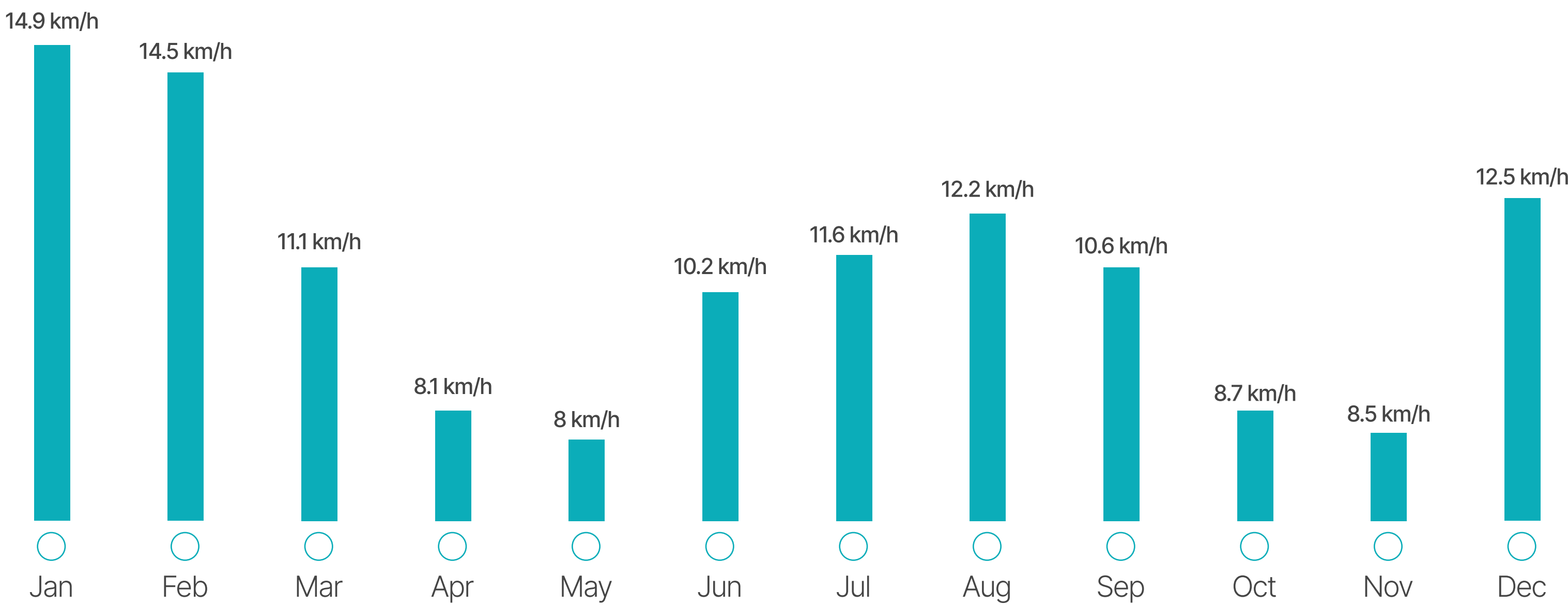


Figure 3.11 shows that Batam experiences moderate wind speeds throughout the year, ranging from 8.0 km/h to 14.9 km/h. The highest velocities occur in January (14.9 km/h) and February (14.5 km/h), while calmer conditions appear between April and May (around 8.0–8.1 km/h) and again in October–November (8.5–8.7 km/h). Despite these fluctuations, wind is present year-round at sufficient levels to support natural ventilation strategies. This consistent airflow potential reinforces the viability of passive cooling approaches such as cross-ventilation, permeable façades, and shaded semi-open corridors. However, seasonal variations suggest that building orientation and opening placement should optimize prevailing wind capture during lower-wind months while avoiding excessive exposure during peak periods.

Figure 3.12: Average High and Low Temperature in Batam
Meteoblue (2025), edited by Author

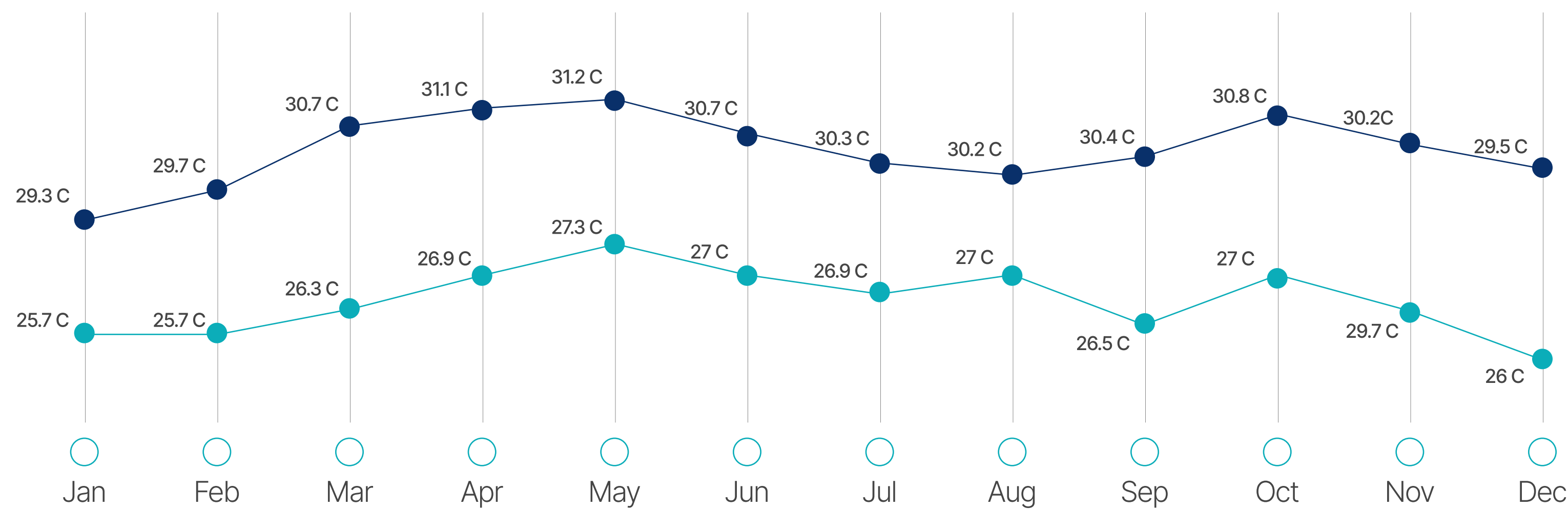


Figure 3.12 shows that Batam maintains consistently high temperatures throughout the year, with average highs ranging between approximately 29.3°C and 31.2°C and average lows between 25.7°C and 27.3°C. The warmest period occurs around April–May, while slightly cooler conditions appear in January and December; however, overall variation remains minimal. This stable thermal pattern reflects a persistently warm equatorial climate with no significant seasonal cooling. Consequently, architectural strategies must prioritize continuous heat mitigation through shading devices, passive ventilation, reflective materials, and minimized heat gain rather than relying on seasonal adjustments.

Figure 3.13: Average Cloud Coverage
Meteoblue (2025), edited by Author

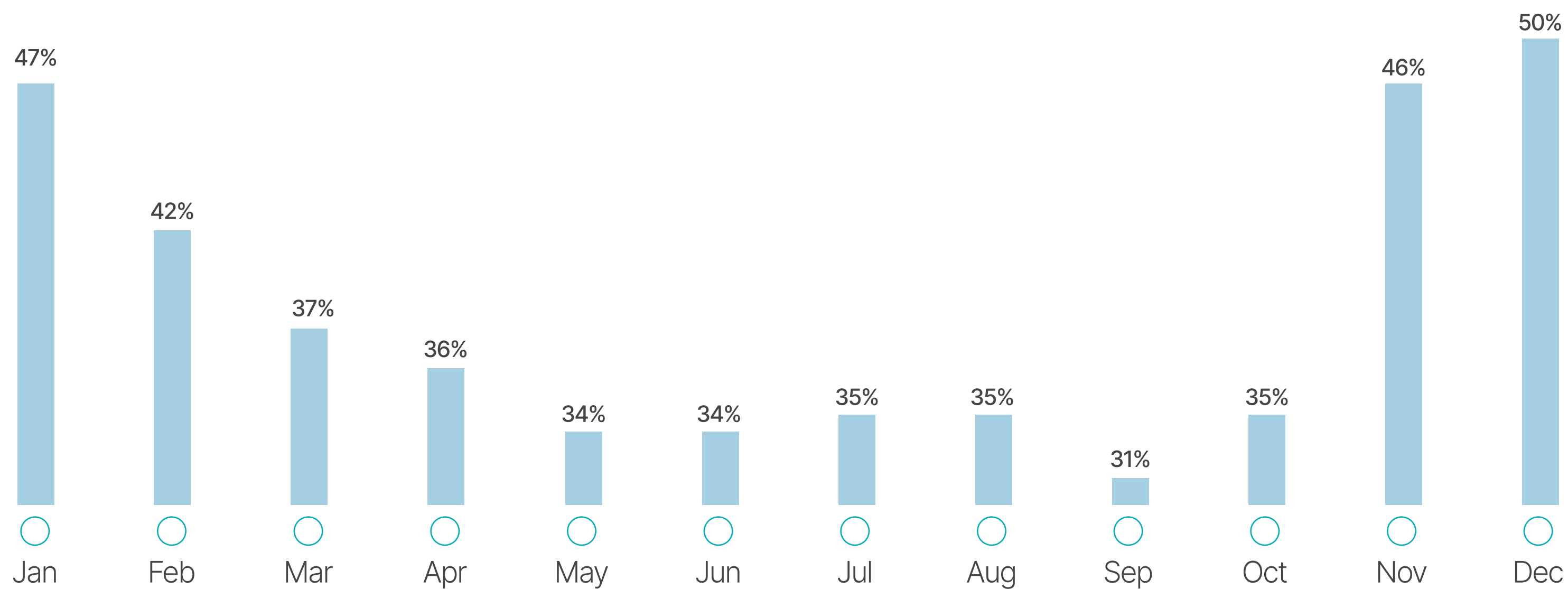


Figure 3.13 indicates moderate to high cloud coverage throughout the year, fluctuating between 31% and 50%. The highest cloud cover occurs in November and December (46–50%), while September records the lowest value (31%). Despite these fluctuations, cloud presence remains relatively consistent, contributing to diffused daylight conditions across much of the year. This suggests that while Batam receives strong solar exposure due to its equatorial position, atmospheric conditions partially moderate direct radiation. For design, this supports the integration of controlled daylighting strategies—such as clerestories, shaded openings, and filtered façades—that balance natural illumination with glare and heat control.

Figure 3.14: Average Monthly Rainfall
Meteoblue (2025), edited by Author

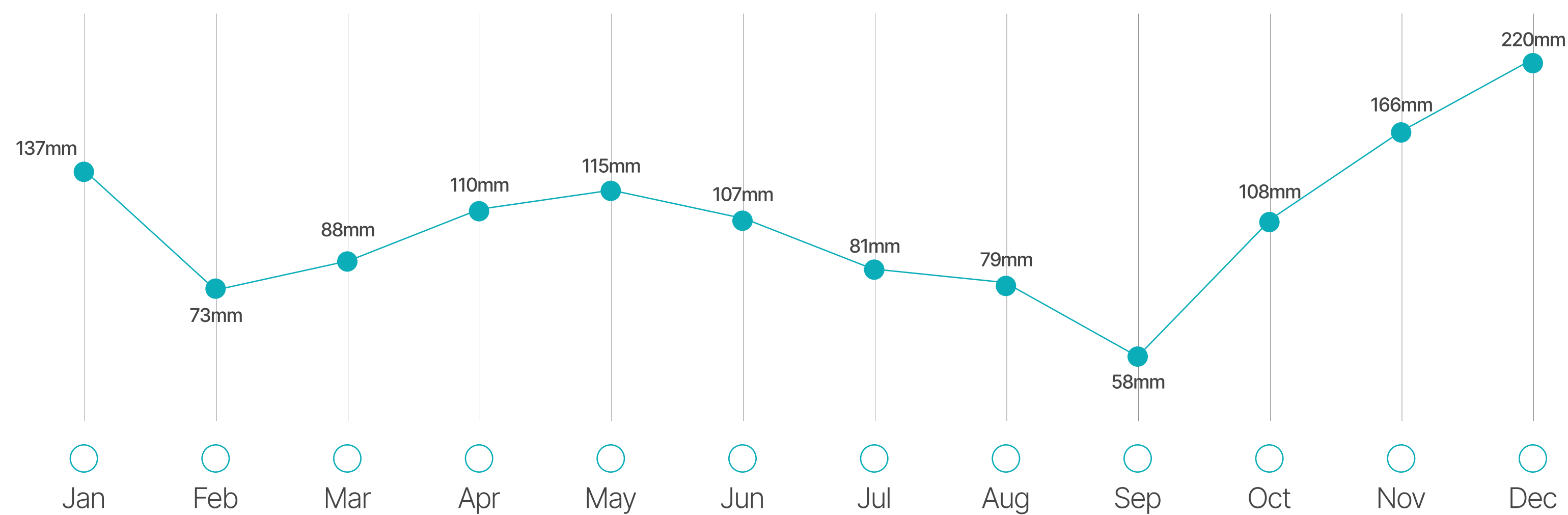


Figure 3.14 shows that Batam experiences substantial rainfall throughout the year, with monthly averages ranging from approximately 58 mm (September) to 170 mm (December). Rainfall peaks toward the end of the year, particularly in November and December, while comparatively drier conditions occur around February and September. Despite these fluctuations, precipitation remains present in every month, reflecting a humid tropical climate with no pronounced dry season. This pattern highlights the necessity for effective water management strategies in architectural design, including proper roof drainage systems, covered walkways, elevated thresholds, and integrated rainwater harvesting. Buildings must be designed to accommodate frequent rainfall while maintaining outdoor usability and pedestrian comfort.

Figure 3.15: Rainfall Days
Meteoblue (2025), edited by Author

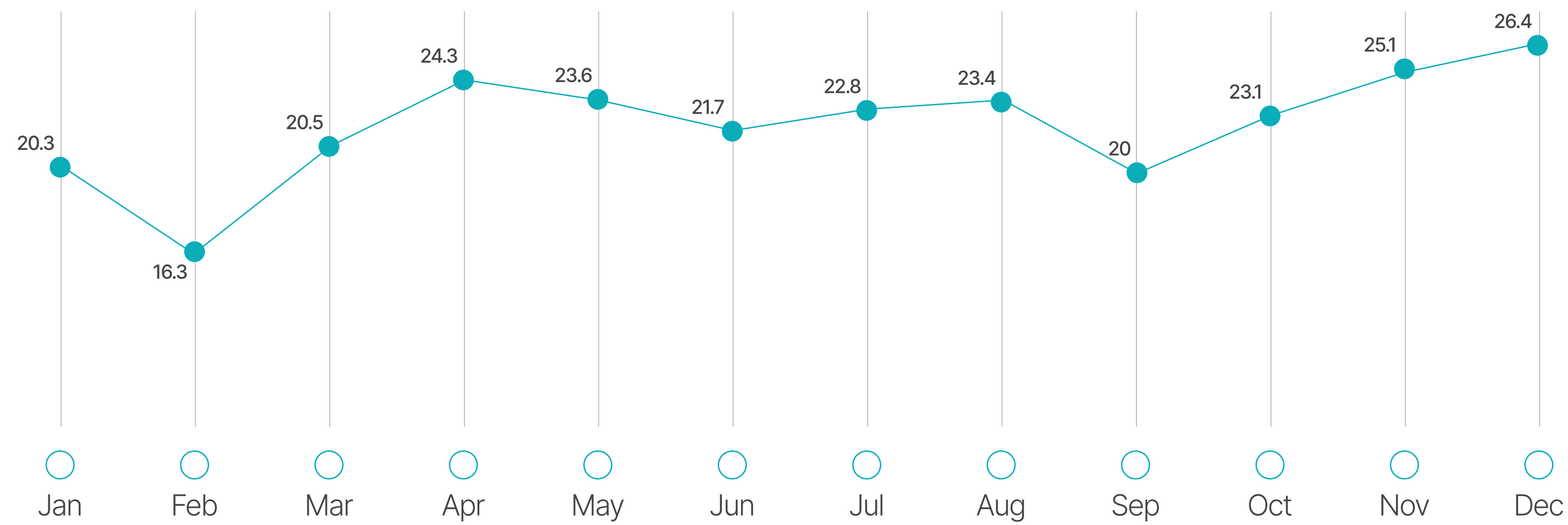


Figure 3.15 indicates that Batam records a high number of rainy days annually, ranging from approximately 16 to 26 days per month. The highest frequency occurs in December (26.4 days) and November (25.1 days), while February shows the lowest (16.3 days). The consistently high number of rainy days suggests that precipitation is not limited to intense seasonal storms but is instead distributed regularly throughout the year. This reinforces the need for climate-responsive architectural solutions such as semi-outdoor transitional spaces, continuous shading, permeable circulation corridors, and weather-protected communal areas. Rather than treating rain as an occasional disruption, design in Batam must integrate rainfall as a constant environmental condition shaping spatial experience.

Design Approach

Social Condenser

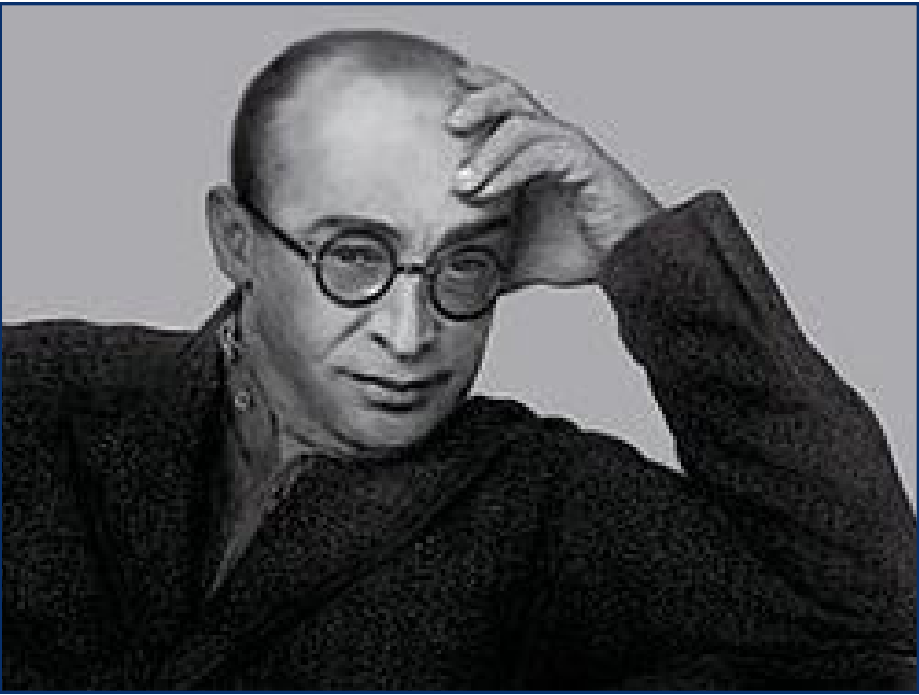


Figure 3.16: Moisei Yakovlevich Ginzburg
Constructivist Architect, “Brain” of the Social Condenser Theory
Source: Wikipedia, 1920
https://commons.wikimedia.org/wiki/File:Moisei_L_Ginzburg.jpg

The social condenser is an architectural framework grounded in the belief that spatial form not only shapes human experience but actively conditions social behavior — suggesting that the configuration of space can cultivate, direct, or intensify collective interaction made known by Moisei Ginzburg (**see figure 3.16**)

Historically, the concept was applied by constructivists to a range of architectural and urban structures, including “communal housing, worker’s clubs, palaces of labor, administrative buildings and even factories”. All of these were supposed to become “Conductors and Condensers of Socialist Culture”

In modern times, the concept is reinterpreted, as part of an effort to “de-politize” the key concept, into what is considered as a spatial catalyst for social interaction, community engagement and cross-programmatic encounters—without ideological goals. The focus shifts from political reformation to social inclusivity, accessibility and urban vibrancy.

Murawski (2017) argued in their paper that this century-old, relentlessly misap-propiated but still-electric concept, as a tool for making manifest the extent to which this reigning ideology is no less bizarre and bankrupt today than it was one hundred years ago, on the brink (and in the aftermath) of the collapse of the Tsarist autocracy.

Implementation in Architecture

If implemented into architectural design the framework provides design guidelines such as

Spatial organization that delineates unpredicted encounters or promote chance encounters
Including “Multi Zones” that allow for fluid transformation between programs
Combining contrasting functions to bring different demographics together
Creating communal amenities
Encouraging participatory and community events through spatial generosity and the design to should position itself as a connector in its urban context, avoiding itself as an isolated entity

Typology Study

Community Center

According to Almesa Yuli Hasyiyati, Prianto, and Atiek Suprapti (2012), a community center can be broadly defined as a facility that serves as a hub for communal activities. It is a building or complex that integrates multiple functions, each tailored to the characteristics, context, and needs of the surrounding community. Within it, various groups of people with shared interests or objectives (kepentingan) can gather, interact, and engage in collective activities.

Community centers may take on diverse forms depending on their primary purpose — serving as spaces for social interaction, religious practice, education, leisure and recreation, or sports — all with the shared goal of fostering community cohesion and participation.

The establishment of a community center generally arises from two main motivations: either to replace or improve an existing facility that has effectively met community needs, or to introduce a new facility aimed at revitalizing social cohesion and a sense of community. The design and development process should involve meaningful community consultation — working collaboratively with local organizations to identify needs and expectations, analyzing existing facilities to avoid redundancy, and translating these findings into a design brief and spatial program. Engagement with local authorities is also essential to address funding opportunities, planning considerations, and access or transport-related issues.

For a community center to be truly viable, it must be perceived as inclusive, accessible, and beneficial to all members of the community.

Community centers generally share a set of core components, even though their spatial configuration and programmatic emphasis respond to the demographic, cultural, and socio-economic context of the communities they serve. At their foundation, most community centers include multi-purpose halls and meeting rooms that accommodate gatherings, workshops, civic discussions, performances, and local events. These flexible spaces allow the building to support both formal and informal activities, reinforcing its role as a communal anchor.

Supporting facilities typically include administrative offices for management and community advisory services, ensuring operational functionality and access to social support programs. Computer rooms or digital learning spaces are increasingly common, addressing contemporary needs for digital literacy, education, and remote work. Complementary amenities such as cafés or small bars, kitchens, and storage areas enhance the building's capacity to host events and encourage prolonged occupation throughout the day.

Many community centers also incorporate active and wellness-oriented spaces, including fitness rooms, sports halls, and changing facilities, promoting physical health alongside social engagement. These facilities often operate on a routine-based visitation model, contributing to consistent daily occupancy. In some cases, centers integrate specialized or “unusual” elements—such as art studios, galleries, childcare spaces, healthcare clinics, or maker labs—to respond to specific local demands. Collectively, these components transform the community center into a multifunctional civic environment that supports social interaction, education, recreation, and wellbeing under one cohesive framework.

Pickard identifies several key design considerations:

image

The center should project a welcoming character that appeals to all age groups and contributes positively to the community's identity.

site and location

Ideally positioned at the heart of the community, near complementary facilities such as schools, shops, and libraries, and easily accessible by public transport.

organization

The building layout should be straightforward and manageable, with clear circulation routes and sufficient storage space to support operations.

circulation

Corridors should be minimized to reduce costs and maximize usable, multifunctional space.

accessibility

The design must accommodate diverse users — including children, the elderly, and people with disabilities — ensuring barrier-free access throughout.

flexibility

Spaces should be adaptable for multiple uses and future needs, allowing the building to evolve as community demands change.

maintenance

Material and system choices should consider long-term durability and maintenance efficiency to ensure sustainability and cost-effectiveness.

security

Protective measures should be integrated subtly, maintaining a sense of openness and safety without compromising the welcoming image of the facility.

environment and services

The building should emphasize low energy and water consumption, with efficient, user-friendly systems for heating, lighting, and security that support environmental sustainability.

Precedent Study

Bukit Canberra



Figure 3.21
Bukit Canberra Entrance
Source: Author, 2025

Project Details

Location: Sembawang, Singapore
Status: Under construction
Area: 11.8 ha
Architects: DP Architects

Bukit Canberra (see figure 3.21) is a large-scale integrated community, sports, and lifestyle development on an 11.8-hectare greenfield site with hilly terrain. Anchored by the Former Admiralty House (now Canberra House) as a preserved national monument, the project integrates sports, health, and community facilities with the natural terrain and forested environment to promote active, healthy living while honouring heritage.

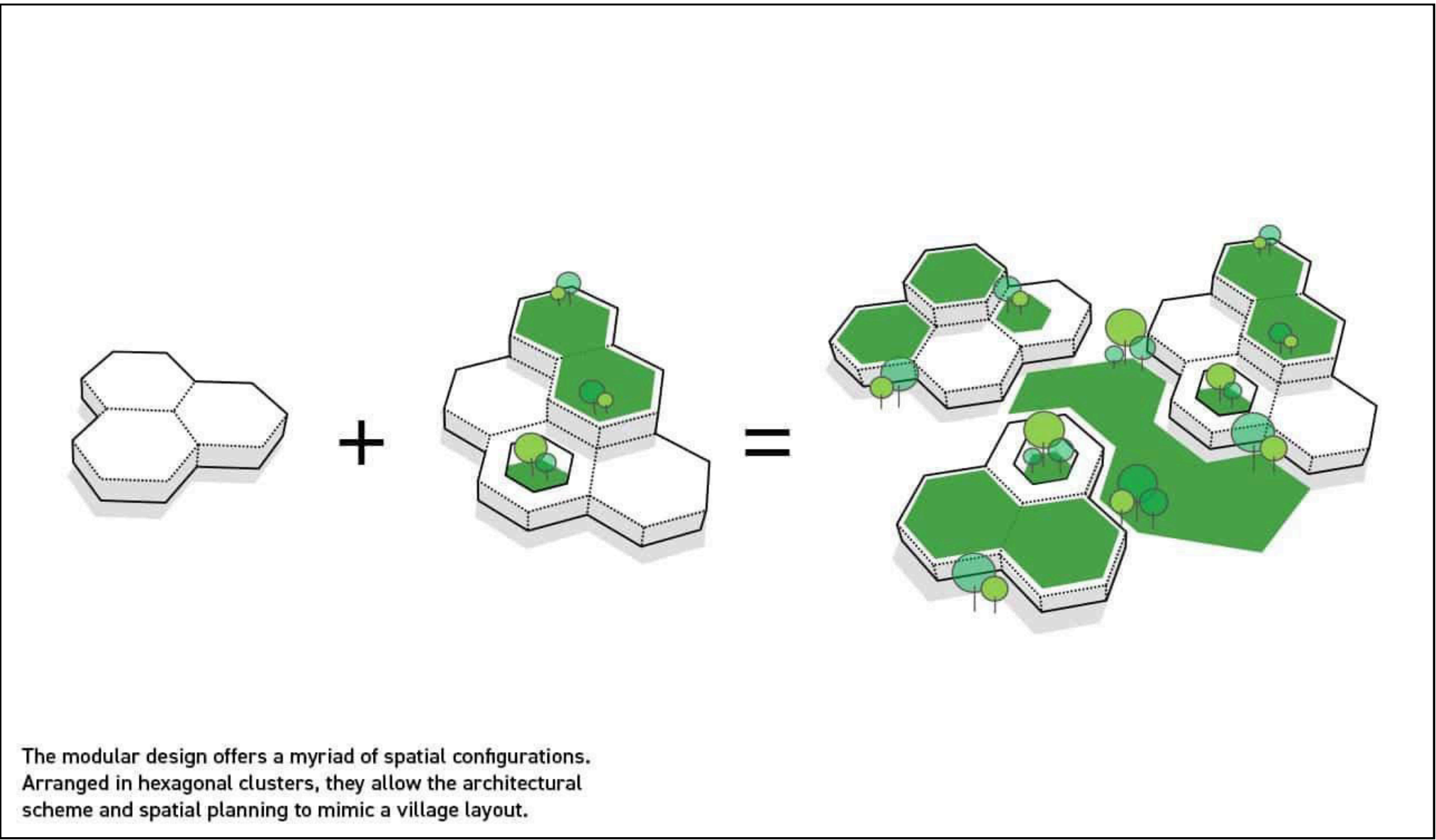


Figure 3.22
Spatial Layout Diagram of Bukit Canberra
Source: DP Architects, 2024
<https://www.dpa.com.sg/projects/bukit-canberra/>

The master plan of Bukit Canberra consolidates diverse public programs—sports, healthcare, community services, and leisure—through a modular hexagonal planning strategy that fosters both integration and flexibility. As illustrated in the diagram, clustered hexagonal modules form a village-like spatial configuration, breaking down the scale of a large civic complex into smaller, human-scaled components. This aggregation strategy allows multiple functions to coexist cohesively while maintaining distinct identities, creating a holistic environment where fitness, daily life, and social interaction reinforce one another.

Beyond functional integration, the project embodies a regenerative approach by embedding architecture within a continuous landscape framework (see figure 3.22). Green roofs, terraced gardens, and open communal courtyards extend ecological systems across the built form, allowing nature to operate not as decoration but as connective infrastructure. The modular clusters create interstitial green spaces that act as social condensers—encouraging informal encounters while improving microclimatic comfort in Singapore’s tropical climate. By merging built mass with landscape networks, Bukit Canberra strengthens resilience, supports biodiversity, and promotes long-term adaptability. Ultimately, the project demonstrates how modular design, ecological integration, and community programming can converge to produce a socially cohesive and environmentally responsive civic hub.

Punggol Neighbourhood & Polyclinic

Project Details

Location: Punggol, Singapore
Status: Completed
Area: 27000sqm
Architects: Multiply Architects, Serie Architects



Figure 3.23
Central Plaza of Punggol Neighbourhood & Polyclinic

Source: Archdaily, 2019, edited by author
<https://www.archdaily.com/909142/punggol-neighbourhood-and-polyclinic-serie-architects-plus-multiply-architects>

Central Plaza as Focal Point

Seen on **figure 3.23**, The Central Plaza operates as a deliberate urban hinge, positioned at the intersection of major east–west and north–south pedestrian flows. Its adjacency and direct linkage to Oasis LRT Station strengthens its role not merely as an open space, but as a transitional threshold between transport infrastructure, healthcare facilities, and residential clusters. This strategic siting ensures continuous footfall, reinforcing the plaza’s function as both a circulation node and a social condenser.

Architecturally, the scale and openness of the plaza establish a strong sense of permeability. The tall colonnades frame long visual corridors toward surrounding housing blocks, visually stitching the development into its urban context. This framing device reduces the perceived mass of the adjacent buildings and allows daylight penetration, creating a bright, breathable public realm. The proportional height of the columns also lends monumentality without enclosure, balancing civic presence with everyday accessibility.

Spatially, the plaza performs as a flexible foreground to the polyclinic and neighbourhood centre. Its generous clear-span ground plane enables informal activities—gathering, waiting, small-scale performances, and community events—while still accommodating peak circulation during commuting hours. The absence of heavy programmatic elements enhances adaptability, allowing the space to shift between movement-dominated and event-oriented uses.

From a social perspective, the plaza encourages passive interaction. Its openness allows overlapping visibility between different user groups—residents, patients, commuters, and visitors—producing layered social encounters. This overlapping of trajectories exemplifies social condensing principles: the spatial configuration increases chances of incidental contact without forcing interaction.

Environmentally, the semi-sheltered design mediates Singapore’s tropical climate. The elevated canopy and colonnade structure provide shading while maintaining cross-ventilation, reducing heat accumulation. Landscaping visible beyond the plaza softens the hardscape and visually extends greenery into the civic core, reinforcing biophilic qualities and improving thermal comfort.

Overall, the Central Plaza demonstrates how infrastructural adjacency, spatial permeability, and climatic responsiveness can transform a transitional space into an active civic heart. Rather than functioning solely as an access forecourt, it performs as a multi-scalar social platform—simultaneously infrastructural, communal, and environmental in character.

LocHal Library

Project Details

Lead Architect(s)	CIVIC architects
Year	2019
Area	7000 sqm
Location	Tilburg, The Netherlands

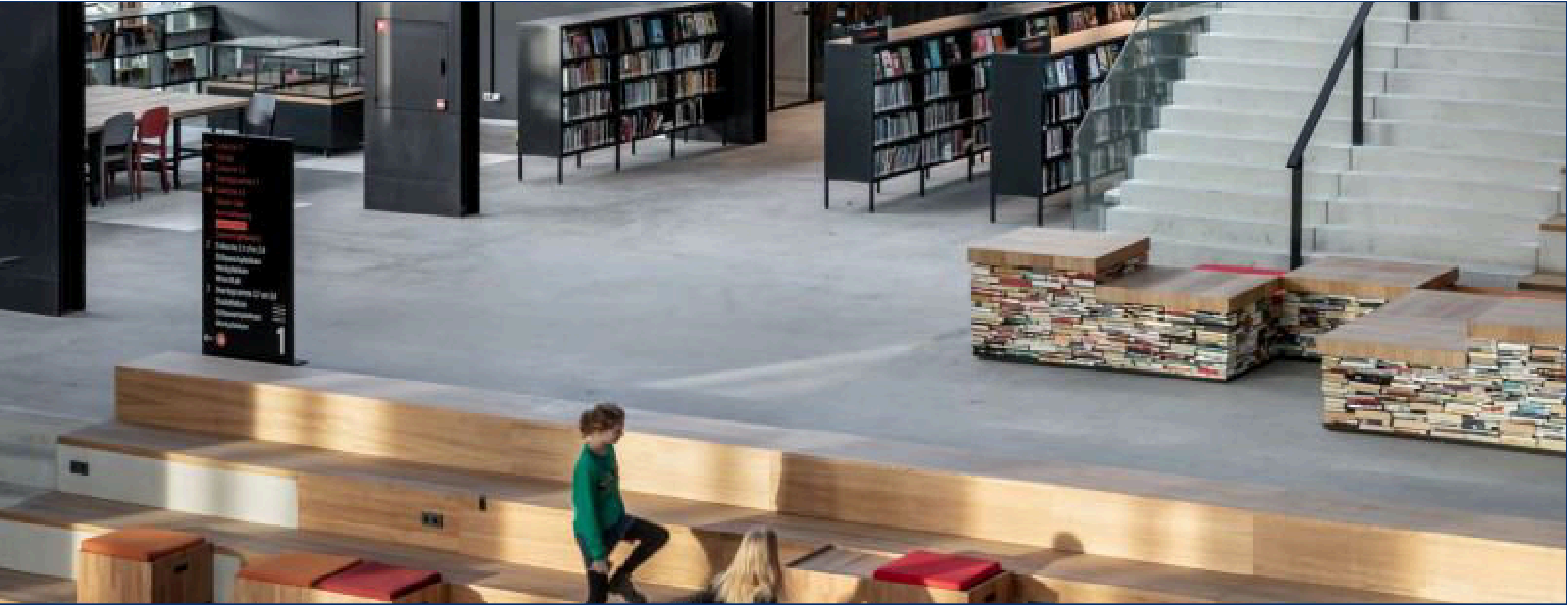


Figure 3.24
LocHal Library Main Lobby
Source: Archdaily, 2019
<https://www.archdaily.com/909540/lochal-library-mecanoo-plus-civic-architects-plus-braaksma-and-roos-architectenbureau>

Located in the City of Tillburg, Netherlands, The LocHal is the new public library of the city. The building is a former locomotive hangar now transformed into a public meeting place seen on **figure 3.24**. Through meticulous architectural intervention, the former industrial area on ‘the wrong side of the tracks’ is turned into a vibrant mixed-use district. It redefines the library typology by stimulating interaction and creation of new knowledge while still preserving ‘book consumer’ facilities.

Evoking Sense of Invitation and Publicness through Height

As illustrated in **Figure 3.25**, the 15-metre-high entrance hall does more than create a dramatic spatial gesture; it establishes a civic-scale interior that mirrors the openness of an urban plaza. The vertical volume amplifies natural daylight penetration, reducing visual compression and enhancing spatial legibility from the moment users enter. This sense of vertical generosity counteracts the potential institutional rigidity of large public buildings, instead presenting an atmosphere that feels inclusive and publicly accessible.



Figure 3.25
Lochal library interior showcasing ceiling height and stairs
Source: Archdaily, 2019
<https://www.archdaily.com/909540/lochal-library-mecanoo-plus-civic-architects-plus-braaksma-and-roos-architectenbureau>

Crucially, the transformation of the staircase into tiered seating redefines circulation as occupation. Rather than acting as a transitional element, the stepped platforms become a social amphitheater—accommodating informal sitting, studying, gathering, and large-scale events of up to 1,000 spectators. This multi-functionality strengthens the “covered city square” concept by embedding flexibility within the architectural form itself. The stair becomes an interface between movement and pause, individual and collective use, reinforcing the building’s identity as a shared civic interior rather than a purely programmatic facility.

Diagonal Sightlines

As seen in **Figure 3.26**, the introduction of diagonal sightlines strategically addresses the challenge of a 15-metre floor-to-ceiling height by visually knitting together multiple levels. Instead of isolating each floor as a horizontal plane, the oblique positioning of balconies, stairs, and openings generates layered visual permeability. This allows users at ground level to glimpse activities occurring on upper floors, and vice versa, fostering awareness across vertical boundaries.

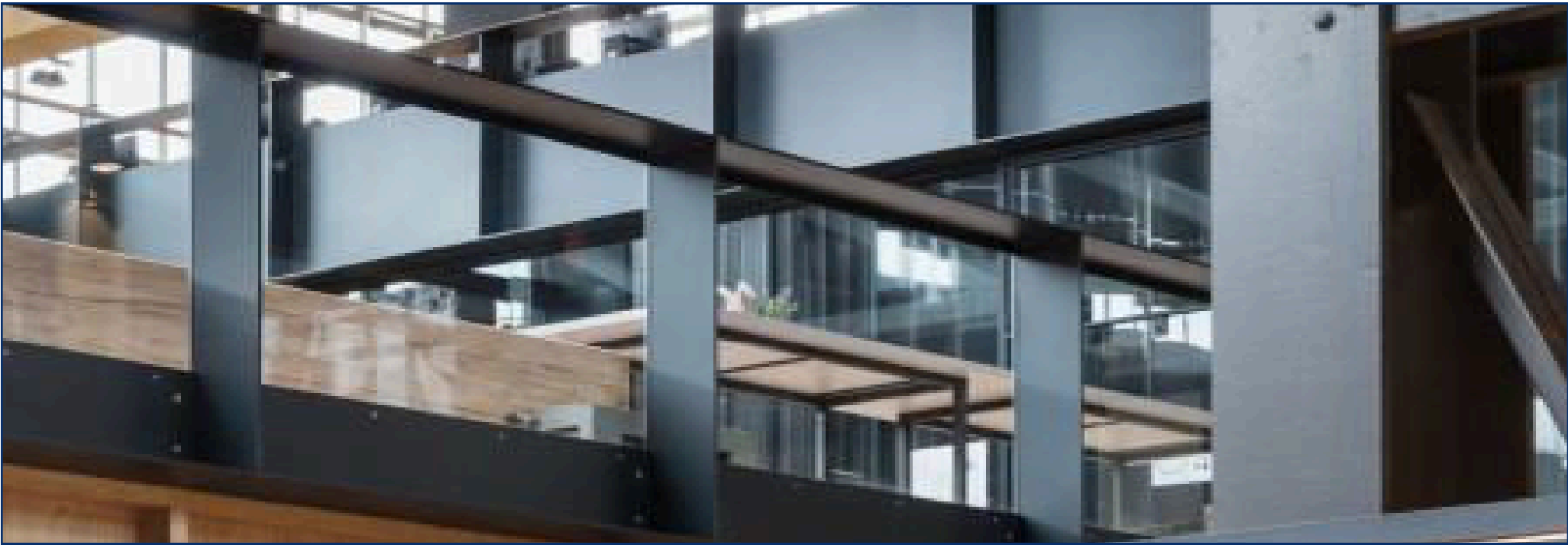


Figure 3.26
Diagonal Sightlines
Source: Archdaily, 2019
<https://www.archdaily.com/909540/lochal-library-mecanoo-plus-civic-architects-plus-braaksma-and-roos-architectenbureau>

Such spatial layering transforms vertical circulation into a social connector. The diagonal lines disrupt rigid orthogonal stacking, producing a dynamic interior landscape where visual interaction becomes continuous rather than compartmentalized. These inter-level glimpses encourage curiosity and movement, subtly drawing users upward through spatial invitation rather than signage alone. Ultimately, the strategy mitigates the potential anonymity of large volumes by reinforcing social presence—ensuring that the building’s scale enhances collective experience rather than fragmenting it.

4

Design
Synthesis

Programming & Spatial Configuration

Activity Pattern and User Analysis

User Analysis - Workers and Professionals

The user profile seen in **table 4.1** indicates a predominantly working-age population (20–45 years old) engaged in industrial, manufacturing, service, and office sectors, characterized by long, structured work schedules and limited weekday leisure time. Their motivations center on stress relief, physical exercise, and post-work socialization, with most recreational activity occurring after commuting or during weekends. Given commuting patterns—primarily via motorbikes and public transport—and time constraints, spatial requirements emphasize convenience, accessibility, and multifunctionality. The derived programmatic needs therefore prioritize flexible fitness facilities, green respite areas, food clusters, community plazas, and post-commute amenities such as showers and lockers. Overall, the analysis suggests that the design must function as an efficient, accessible, and integrated after-work social infrastructure that accommodates short-duration visits while supporting both active and restorative forms of leisure.

Profile	Spatial Requirements
20 to 45 y/o, works in industrial, manufacturing, service or officce sectors	Gym Food and beverage cluster / Hawker center Fitness studios
Daily work rhythm is long & structured (scheduled), Limited time for leisure	Green respite areas (Gardens and Biophilic Inserts) Drop off zones for ride hailing and public transport Micro-activity zones (jogging track, open courts, yoga decks and casual activities)
Motivation or Aims	Motorbike dominant parking Shower and locker rooms for post commute Community plaza Lounge Multipurpose hall Primary Care Unit
Stress relief, Physical exercise, Post-work socialization	
Behaviour Pattern	
For the average, daily routine is scheduled, clock in by 7-9am and then clock out at 3-5pm	
For individuals who work in service, shift time differs. Some work during the day and some work during the night until morning	
Daily commute using private vehicles, mostly motorbikes. Travel distance varies but mostly 5-10km	
Individuals who commute using public transport reserves an hour to two hours for travel time via trans batam	
Physical activities are limited, most rest as soon as they reach home after travelling back for work	
Most individuals reserve their leisure time during the weekends	

Table 4.1
Workers and professionals user analysis
Source: Author, 2025

User Analysis - Students and Young Adults

This user profile seen in **table 4.2** reflects a socially active and tech-savvy demographic aged 15–25, consisting primarily of high school and university students with structured weekday schedules and extended after-school activities. Their motivations emphasize learning opportunities, peer socialization, and community involvement, alongside recreational and creative expression. Behavioral patterns indicate prolonged stays in spaces that offer Wi-Fi access, flexible seating, and comfortable environments for studying or gathering in groups, particularly during evenings and weekends. With generally low to moderate spending capacity and reliance on motorbikes, ride-hailing services, or public transport, accessibility and affordability become critical design considerations. Consequently, the spatial requirements highlight multipurpose halls, study lounges, libraries, gyms, food clusters, and open green spaces that support both active and passive engagement. Overall, the analysis suggests that the design must provide adaptable, youth-friendly environments that accommodate extended occupancy, group interaction, and hybrid learning-recreation activities within an accessible and inclusive civic setting.

Profile	Spatial Requirements
15-25 y/o, high school and university students	Gym Food and beverage cluster / Hawker center Fitness studios
Tech-savvy, socially and physically active	Green respite areas (Gardens and Biophilic Inserts) Drop off zones for ride hailing and public transport Micro-activity zones (jogging track, open courts, yoga decks and casual activities)
Motivation or Aims	Motorbike dominant parking Shower and locker rooms for post commute Community plaza Lounge
Learning opportunities, socialisation wtih peers, community involvement	Multipurpose hall Study lounges Library
Physical activities after school and leisure times, social and creative expression	
Behaviour Pattern	
Daily routine is stritcly scheduled during weekdays, on average school starts from 6am to 4pm	
Post school activities varies such as after school ativities/tutor, takes time until 10pm	
Prolonged stay durations when facilities are engaging such as wifi availability, spacious seating for work and studying	
Low to moderate spending pattern	
Highly social, tend to come in groups	
Daily commute using private vehicles mostly motorbikes, few with cars	
Daily commute using ride hailing services (grab, gojek) or public transport (trans batam)	
Drawn by events such as workshops, misoc nights, events (ex: batam sunday market, food bazaars)	
Most of them reserve their leisure time during the weekends spent for "nongkrong" and settling in with friends at a place for a prolonged time	

Table 4.2
Students and young adults user analysis
Source: Author, 2025

Profile	Spatial Requirements
15-25 y/o, high school and university students	Gym Food and beverage cluster / Hawker center Fitness studios Green respite areas (Gardens and Biophilic Inserts) Drop off zones for ride hailing and public transport Micro-activity zones (jogging track, open courts, yoga decks and casual activities) Motorbike dominant parking Shower and locker rooms for post commute Community plaza Lounge Multipurpose hall Study lounges Library
Tech-savvy, socially and physically active	
Motivation or Aims	
Learning opportunities, socialisation wtih peers, community involvement	
Physical activities after school and leisure times, social and creative expression	
Behaviour Pattern	
Daily routine is stritcly scheduled during weekdays, on average school starts from 6am to 4pm	
Post school activities varies such as after school ativities/tutor, takes time until 10pm	
Prolonged stay durations when facilities are engaging such as wifi availability, spacious seating for work and studying	
Low to moderate spending pattern	
Highly social, tend to come in groups	
Daily commute using private vehicles mostly motorbikes, few with cars	
Daily commute using ride hailing services (grab, gojek) or public transport (trans batam)	
Drawn by events such as workshops, misoc nights, events (ex: batam sunday market, food bazaars)	
Most of them reserve their leisure time during the weekends spent for "nongkrong" and settling in with friends at a place for a prolonged time	

Table 4.2
Students and young adults user analysis
Source: Author, 2025

This user profile seen in **table 4.3** represents adults aged 30–55, including office workers and retirees, who are predominantly family-oriented and prioritize safe, inclusive environments for children and intergenerational bonding. Their behavioral patterns indicate group visits—often as parents, children, and grandparents—with leisure time concentrated on weekends or structured around school schedules. Moderate, collective spending patterns suggest that shared experiences such as dining, performances, fairs, and educational workshops are key drivers of engagement. Safety, accessibility, and comfort are central concerns, particularly in spaces used by children. Consequently, spatial requirements emphasize playgrounds with observation areas, green respite spaces, family-friendly food clusters, multipurpose halls, drop-off zones, and accessible micro-activity areas that accommodate both active and passive recreation. Overall, the analysis suggests that the design must function as a family-centered civic environment that supports collective leisure, supervised play, and intergenerational interaction within a secure and inclusive spatial framework.

Profile	Spatial Requirements
30-55 y/o, office workers or retirees	Playgrounds with observation area
Family oriented, children focused or family focused bod	Lounge
	Food and Beverage Cluster (Hawker Center)
	Car Parking
	Drop off zones for ride hailing and public transport
Motivation or Aims	Micro-activity zones (jogging track, open courts, yoga decks, casual activities)
Safe, educational and inclusive environment for all ages	Green respite areas (gardens & biophilic inserts)
	Primary Care Unit
Acessible space for relaxation and social connection	
Behaviour Pattern	
Ofren come as groups; parents, children and grandparents. Rarely comes alone	
For single income households, the partner who does not work are free on weekdays to bring their children to play or do certain activities	
Double income households usually have a nanny to replace the parent function during weekdays for the child which includes supervising, preparing meals and picking up children from school	
Moderate spending pattern, usually collective for the whole family (ex: shared meals)	
Weekends are usually specially reserved to bond with their partners and their childrens, seeking leisure and recreation	
Time chunked stays instead of prolonged stays	
Values safety and inclusivity, as it matters to their children or partner	
Drawn by events such as performances, fairs or family events	
Engages with creative or educational workshops with children or partner	

Table 4.3
Families and parents user analysis
Source: Author, 2025

User Analysis - Elderly Residents

This user profile **seen in table 4.4** represents elderly residents aged 55 and above, primarily retirees who prioritize physical well-being, routine-based activities, and social bonding with family members, particularly children and grandchildren. Their behavioral patterns indicate a preference for predictable environments, slower mobility, and heightened sensitivity to climatic conditions, especially excessive heat. Safety and accessibility are critical considerations, as physical fragility increases the risks associated with poorly designed circulation, uneven surfaces, or inadequate shading. Socially, they tend to visit in companionship rather than alone and demonstrate stronger inclinations toward spiritual, cultural, and traditional activities over contemporary ones. Given their generally lower spending capacity and comfort-oriented needs, spatial requirements emphasize shaded community plazas, green respite areas, accessible fitness facilities, multipurpose halls, and proximity to primary care services. Overall, the analysis suggests that the design must provide barrier-free, climate-responsive, and socially nurturing environments that foster intergenerational interaction while ensuring safety, comfort, and dignity for elderly users.

Profile	Spatial Requirements
55+ y/o, retirees	Gym
Stay at home seniors, grandparents	Food and beverage cluster / Hawker center
	Fitness studios
	Green respite areas (Gardens and Biophilic Inserts)
	Drop off zones for ride hailing and public transport
Motivation or Aims	Micro-activity zones (jogging track, open courts, yoga decks and casual activities)
Physical activity and routine community gathering	Motorbike dominant parking
	Community plaza
Bonding with their children and grandchildren	Lounge
	Multipurpose hall
	Primary Care Unit
Behaviour Pattern	
Comes with their chosen company such as children, partner or grandchildren. Rarely alone	
Routine oriented as they thrive on repetition and predictability	
Low and slow mobility due to decrease of physical capability	
Sensitivity to climate as it easily affects their health (Ex: eccess heat) prioritizing comfort	
High tendency to engage in spiritual and cultural activities	
Enjoys company or interaction from other elderlies	
Enjoys traditional activities, arts or crafts compared to modern or contemporary ones	
Safety is necessity, fragile physical being, a minor injury may result in fatal results	
Low spending pattern	

Table 4.4
Elderly residents user analysis
Source: Author, 2025

Activity-Based Programming

Based on the activity analysis and user potential mapping, programs are systematically organized into three primary clusters. Each cluster groups activities with similar functional characteristics, operational requirements, and user demographics to ensure spatial efficiency and programmatic clarity.

Table 4.5 provides the conclusion of analysis through clustering. Within each cluster, supporting programs are then determined based on adjacency needs, service requirements, and intensity of use. This structured clustering approach enables coherent circulation, strengthens shared boundary conditions between related functions, and enhances operational effectiveness while maintaining the overall objective of fostering social interaction.

Activity	Supporting Facilities/Program
Health & Wellness	Gym, Fitness Studios, Multipurpose Courts, Primary Care Unit
Culture and Education	Library, Archive Rooms, Multipurpose Hall, Exhibition Area, Art Studios, Theater, Ampitheater
Community	Plaza, Green Respite Area, Hawker Center, Lounges

Table 4.5
Activity Based Programming

Author (2025)

Analysis of Activity Patterns - Visitors

Intentions

Leisure, Exerecise, Socialize, Work and Study

The activity pattern illustrates seen in **figure 4.1** a clear sequential journey, beginning with arrival, parking or drop-off, and entry, followed by orientation and information seeking. Visitors then disperse into diverse programmatic zones supporting exercise, study, play, events, exhibitions, dining, and healthcare, reflecting multifunctional use within a single visit. Support facilities such as prayer areas, rest spaces, and lavatories indicate the need for comfort and extended duration stays. Overall, the flow emphasizes a comprehensive, integrated environment that accommodates varied purposes while maintaining logical circulation from entry to exit.

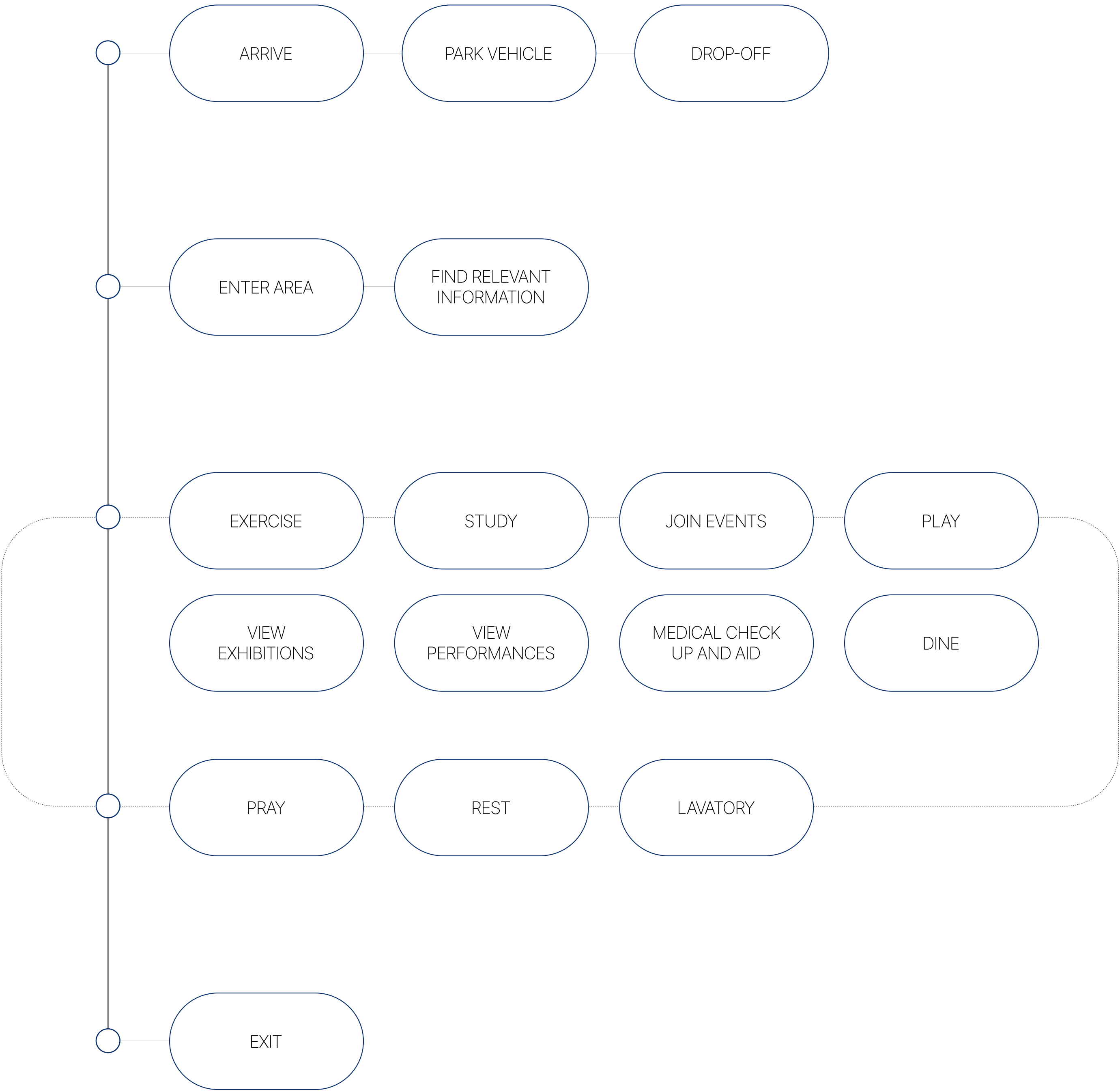


Figure 4.1
Diagram of Visitors' Activities
Author (2025)

Analysis of Activity Patterns - Management

Intentions

Supervise, operate, assist and manage the facility

The activity flow seen in **figure 4.2** outlines a structured operational sequence beginning with arrival, parking or drop-off, and entry into the facility. Core responsibilities revolve around supervising, assisting users, reporting, and conducting maintenance, supported by essential amenities such as prayer areas, rest spaces, and lavatories. The sequence concludes with exit, emphasizing an organized and service-oriented spatial workflow.



Figure 4.2
Diagram of Management's Activities

Author (2025)

Analysis of Activity Patterns - Shop Owners

Intentions

Operate stalls, sell food and beverages

The activity sequence seen in **figure 4.3** illustrates a vendor-oriented workflow beginning with arrival, parking or drop-off, and entry into the facility. Core operations focus on managing goods, producing or preparing items, and clearing up after service, supported by essential amenities such as prayer spaces, rest areas, and lavatories. The flow concludes with exit, reflecting a cyclical and function-driven operational pattern within the facility.



Figure 4.3
Diagram of Shop Owner's Activities

Author (2025)

Design Criteria

Program Diversity

The design must incorporate clearly differentiated programmatic functions to serve a broad and diverse range of users.

Shared Boundary Length between Program

Programs must be positioned along a shared axis or common edge to encourage interaction (“collision”) between different user demographics.

Convergence Points and Corridors

In pursuit of social group collision, the design shall incorporate spatial conditions that facilitate unplanned and incidental meetings.

Transformable and Flexible Spaces

As a social condenser intended to serve diverse social demographics, the community center must provide multifunctional and generous spaces capable of accommodating temporary architectural or infrastructural installations for events and activities.

Operational Durability for Extended Hours

To support increased user capacity, programs within the building must operate beyond standard hours, and the building must be designed to accommodate extended operations.

Integration with the Surrounding Urban Context and Accessibility to the Facility

As a social condenser, the community center must not be morphologically or programmatically isolated from the surrounding urban context and existing activities. To serve a wider demographic at the meso scale, the design must enable accessibility by functioning as a connective urban node.

Middle-Ground Architectural Identity

Located within the city center and surrounded by multiple neighborhoods, the design must represent the city’s collective identity as a strategy to foster a sense of belonging and reinforce its role as a social condenser.

Design Guideline

Design Aspect	Description	Sugessted Size/Dimension
Spatial Configuration	The Living Continuum zoning concept organizes programs along an axis defined by existing urban movement patterns, specifically the site's primary entry and exit points. Within this axis, a Public Corridor (Social Spine) is established to facilitate mobility and encourage incidental social interaction.	Along and within the site: 36000sqm/3.6ha
Social Corridor and Convergence Points	The design must increase the number of convergence points where multiple pedestrian movement directions intersect, and provide main circulation spaces at least three times larger than minimum standards to accommodate supporting furniture and spatial flexibility.	3–5 Convergence Points; 4m-10m width corridor with supporting furnitures
Green Open Spaces	The design shall allocate event-capable spaces at medium to large scales to support rental-based revenue for ongoing maintenance, while prioritizing the creation of green open space to address local shortages.	At least 20% of the total site area shall be positioned along the site edge facing the primary road or urban frontage.
Circulation System	The design must establish a continuous circulation system that connects all street frontages into and through the building and site, links surrounding transportation nodes, and provides continuous shading appropriate to a tropical climate.	A minimum of 100 m of shaded walkway must be provided, connecting at least two major entry points from a minimum of two sides of the site.
Visual Permeability and Lighting	Each program must maintain a clear and legible frontage oriented toward the main circulation area (Social Spine).	A minimum window-to-wall ratio (WWR) of 30% must be applied along the main corridor, and skylights or clerestory openings must be integrated in high-ceiling areas.
Ventilation System	Openings on opposite sides to enable cross ventilation system. High ceilings to allow negative pressure for further natural ventilation system	A minimum window-to-wall ratio (WWR) of 30% must be applied along the main corridor, and skylights or clerestory openings must be integrated in high-ceiling areas.
Shared Open Air Facilities	The design must provide open-air facilities for arts, cultural, and wellness activities within the site to enhance public engagement and temporal density.	At least 10% of the Building Coverage Ratio (BCR) must be allocated to the specified aspect.
Building Shading System	The design must incorporate a secondary building skin to reduce solar glare, lower internal temperatures, and contribute to the building's architectural character.	A minimum of 40% of the building façade, particularly on critical exposure areas, shall be treated with a secondary skin system.
Building Form and Material	The design must prioritize locally sourced, low-maintenance building materials, and adopt a building form that expresses Batam's collective shared identity.	The building shall utilize locally produced industrial materials and articulate a modernist industrial form representative of the city's labor-oriented identity.

Spatial Layouting

Design Concept

The design concept adopts a gradient zoning strategy from public to private to prevent rigid spatial segregation while encouraging integration and chance encounters. As outlined in **Table 4.7**, the Edge zone accommodates highly public programs such as the hawker center and plaza, the Transition zone mediates between open and controlled activities, and the Core zone houses focused functions like the clinic, gymnasium, and library. **Figure 4.4** illustrates how these layers are stitched together by a continuous social spine, enabling porous circulation, visual connectivity, and shared convergence points between zones. Integration is reinforced through overlapping thresholds, shared courtyards, transparent frontages, and programmatic adjacency—such as positioning leisure, wellness, and cultural spaces along the same circulation axis—allowing diverse users and activities to coexist within a cohesive civic framework.

Category	Deliberation	Zoning	Program
Edge	Positioned along the periphery of the site or building mass, the edge zone acts as an entry condenser — connecting the urban exterior with the inner layers of the program. It captures movement from the city and gradually guides users inward.	Community	Hawker Center, Plaza, Ampitheater
Transition	Situated between the edge and core, this transitional layer functions as a social bridge that mediates the shift from open urban activities to focused internal programs. It accommodates flexible and hybrid uses — such as exhibitions, workshops, or performances — that benefit from both visibility and accessibility.	Community	Lounge, Exhibition Area, Multipurpose Hall
Core	Located deeper within the building mass — not necessarily at the center but strategically distanced from the urban edge — the core zone houses high-focus or controlled activities. Its placement minimizes noise and spatial conflict while maintaining indirect connections to the surrounding layers.	Activity & Wellness	Clinic, Gymnasium, Ball Courts
		Culture & Knowledge	Library, Learning Commons
		Community	Green Respite Area, Lounges, Open Decks

Table 4.7
Zoning Concept Table
Author (2025)

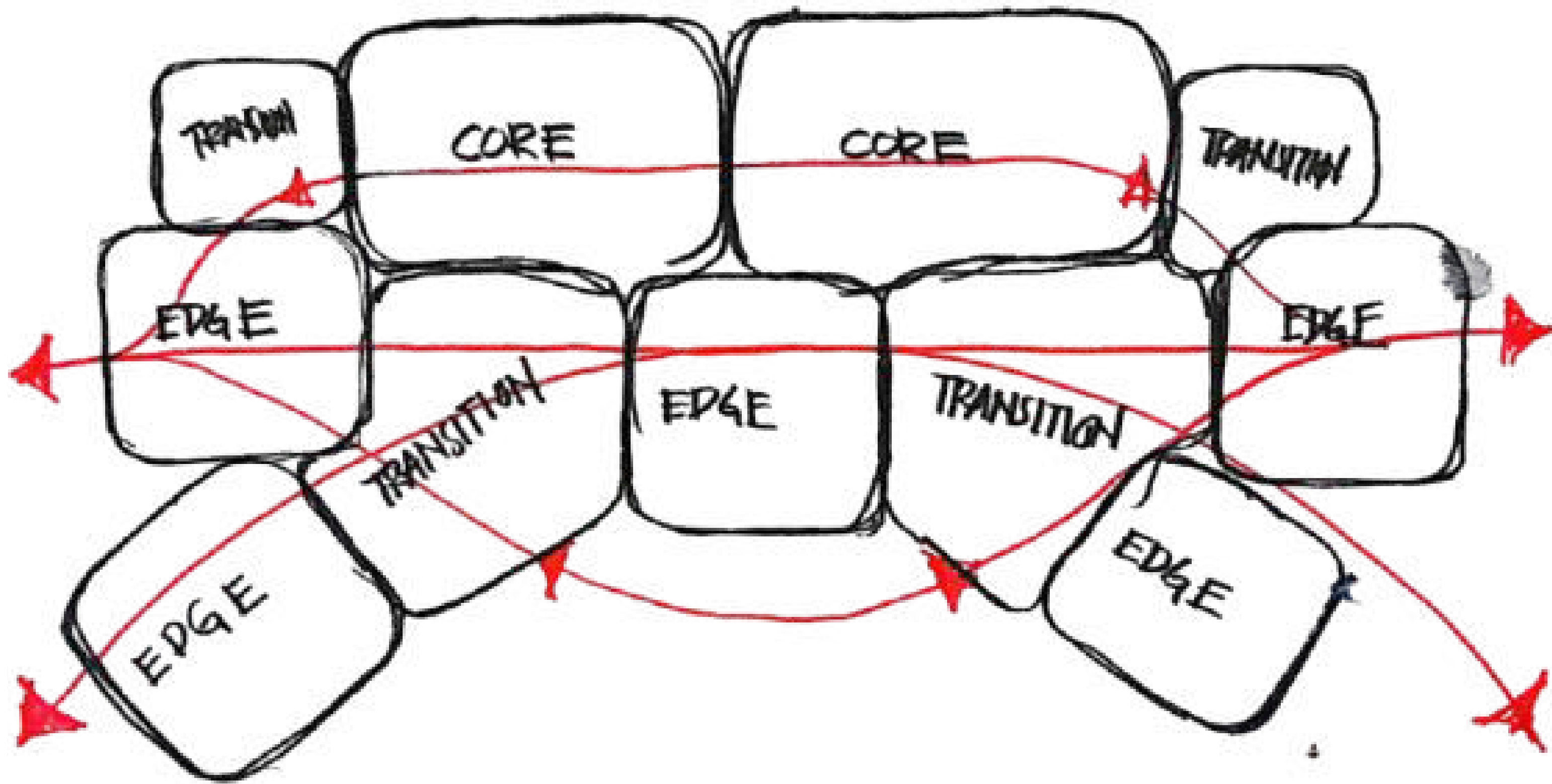


Figure 4.4
Zoning Concept Diagram
Author (2025)

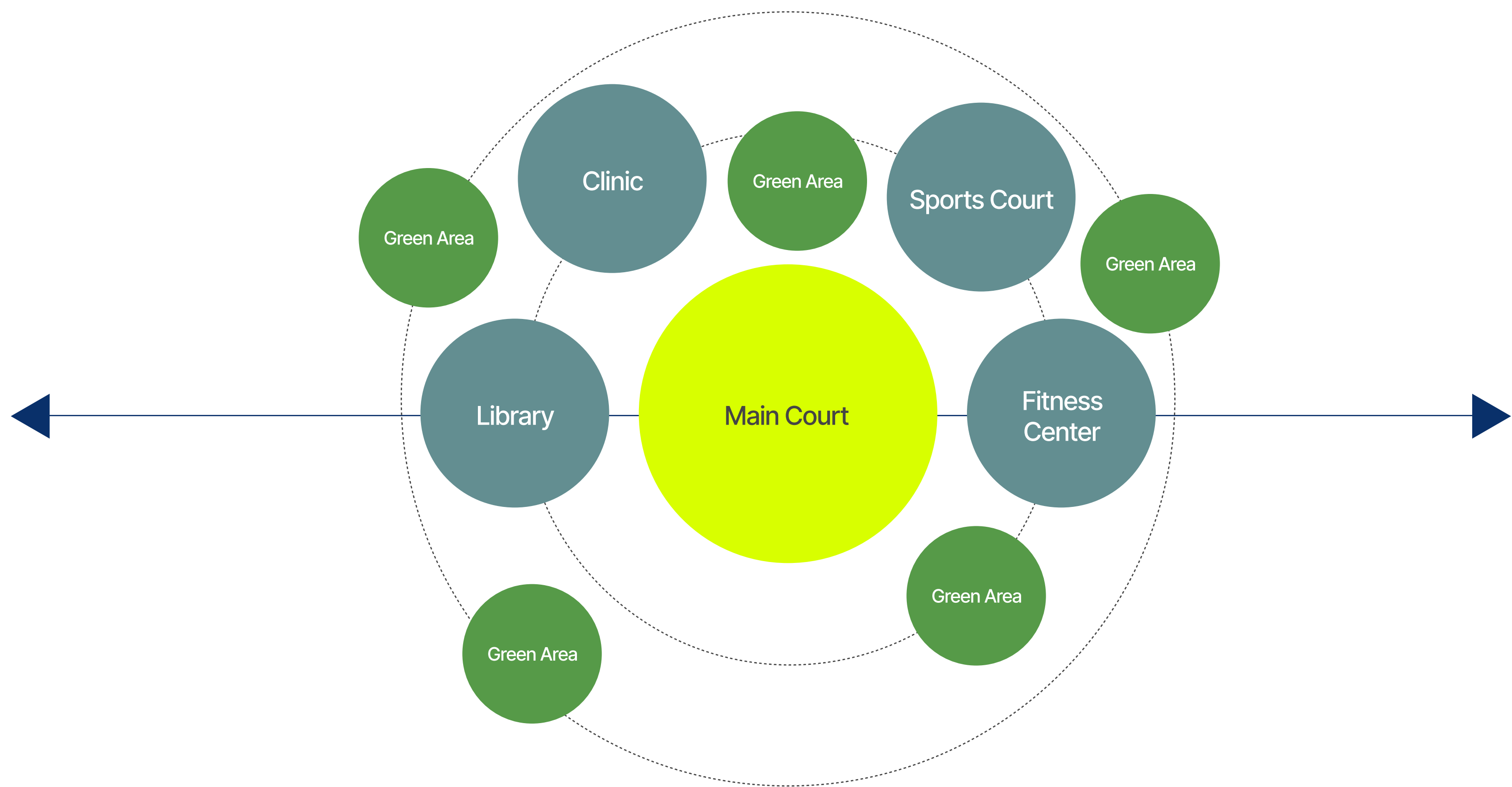


Figure 4.5
Zoning Concept Diagram
Author (2025)

Explanation

The initial concept proposed a radial spatial organization shwon in **Figure 4.5** in which programmatic zones are interconnected by a continuous belt corridor system, with interstitial green spaces positioned between each program. This scheme performs strongly in establishing a singular common ground at the center, reinforcing spatial unity and collective orientation. However, from a compositional and movement perspective, the proliferation of pocket gardens and dispersed green areas risks diffusing pedestrian flow, potentially diverting activity away from the main court and weakening its role as the primary social condenser.

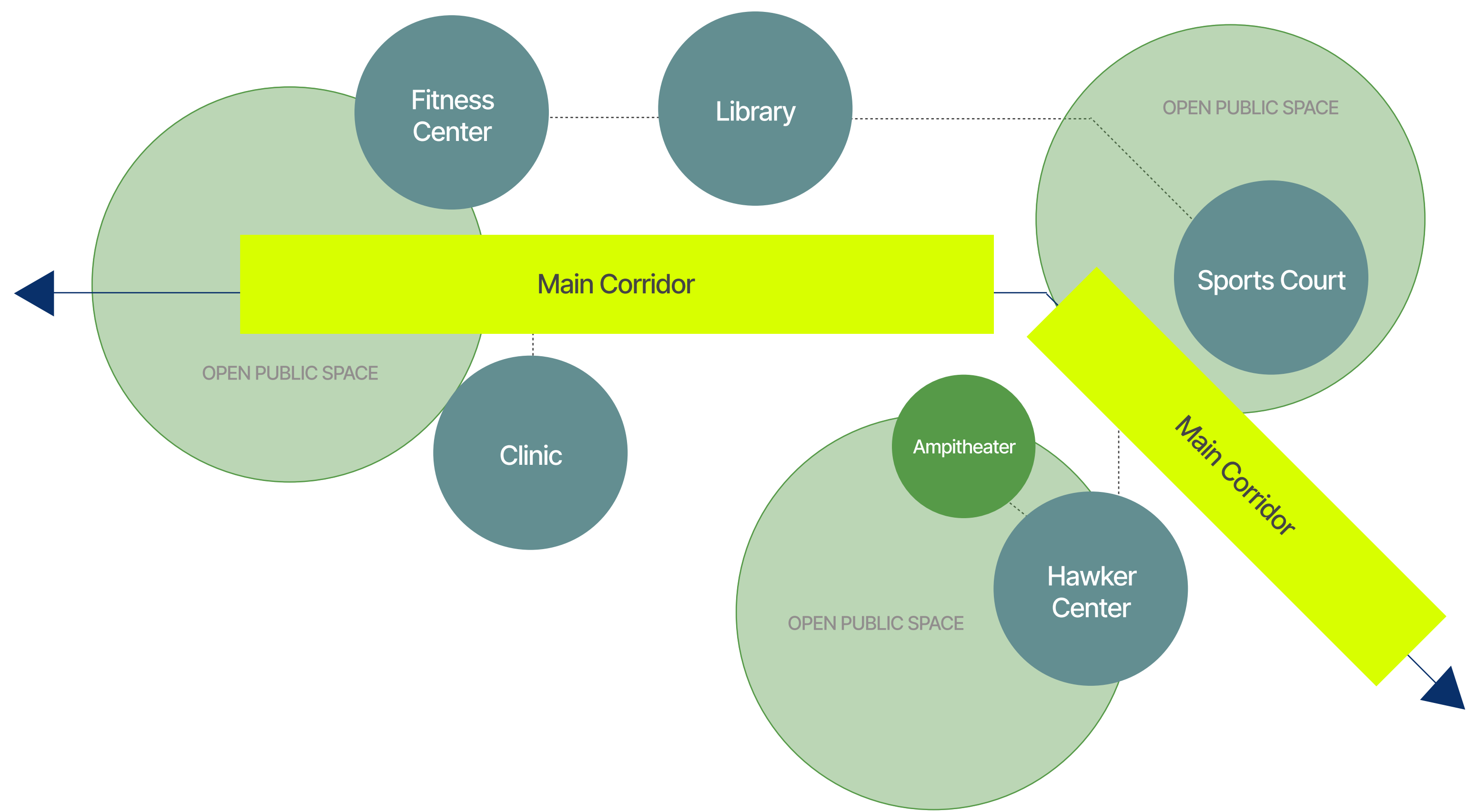


Figure 4.6
Zoning Concept Diagram
Author (2025)

Explanation

This design concept was ultimately selected and further developed by transforming the former central court into a primary linear corridor that functions as a “social spine” shown on **figure 4.6**. Rather than acting as a static focal point, this spine integrates programmatic functions along its length, activating the corridor as a space of social interaction. It facilitates urban movement by directly connecting all major entry and exit points across the site, allowing the building to be traversed as part of everyday pedestrian flow. This configuration also establishes a reciprocal visual and social relationship between interior activities and passing urban users, reinforcing openness, accessibility, and the community center’s role as an active social condenser.

Justification

The selected configuration fulfills the established design criteria by organizing diverse programs along a primary linear corridor that maximizes shared boundary length and intensifies inter-program adjacency shown on **figure 4.6**. The main corridor functions as a connective urban spine, directly linking major open public spaces and key facilities (library, fitness center, clinic, hawker center, sports court), thereby generating deliberate convergence points at their intersections. These enlarged nodes enable spatial flexibility and support incidental social interaction in accordance with the social condenser approach. Program distribution across multiple access points ensures operational durability and permeability, allowing the building to function as an extended-hour civic connector rather than a closed object. Simultaneously, its integration with surrounding public spaces reinforces accessibility and contextual continuity, while the neutral, infrastructural expression of the spine supports a middle-ground architectural identity.

Design Concepting

In its existing condition, the site is strategically positioned between two bus stops and is directly connected to a secondary arterial road, with an established pedestrian pathway cutting through its edge. The surrounding context consists of malls and commercial buildings, generating a consistently dynamic flow of movement and activity.

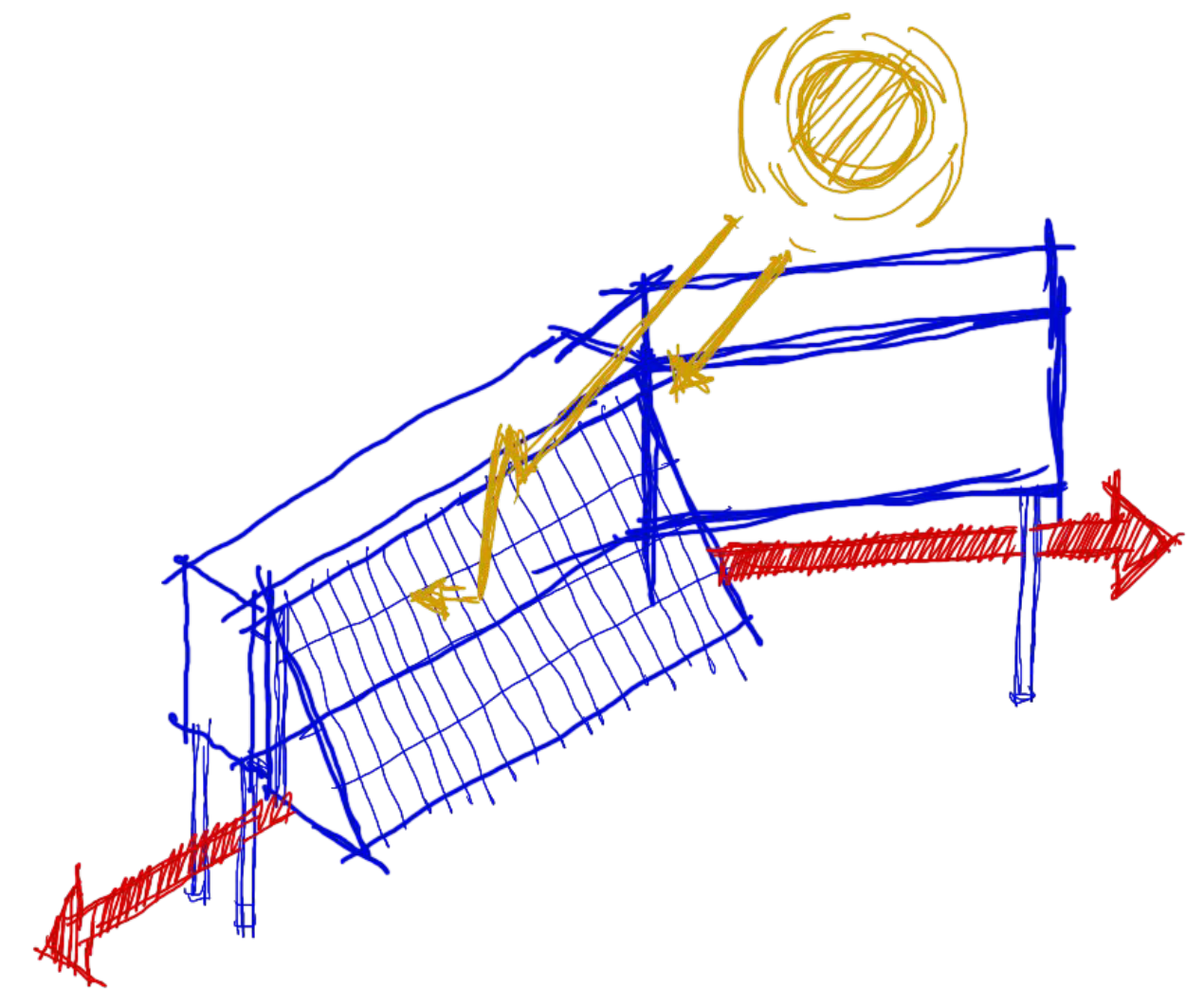
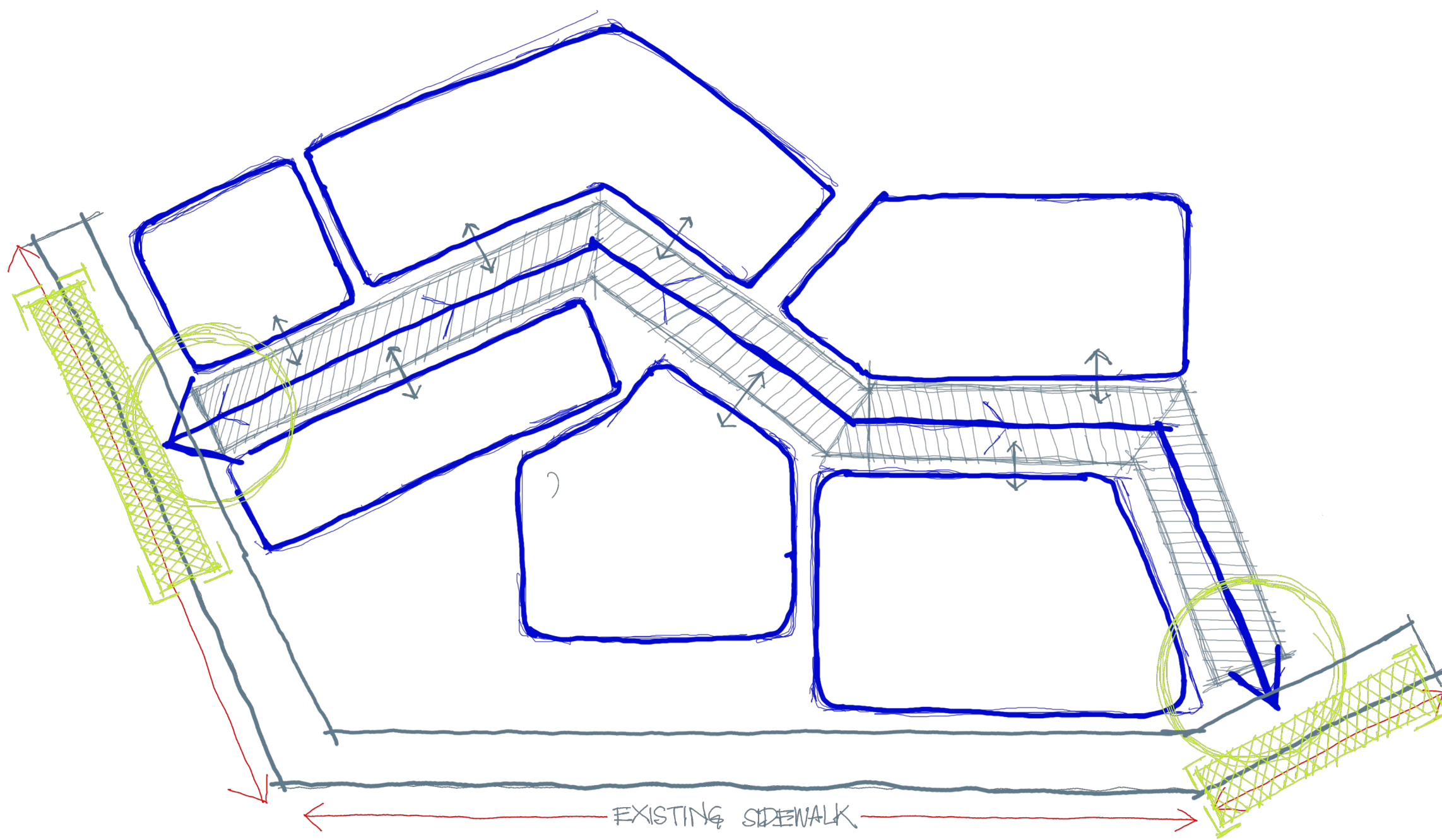


Figure 4.7
Pathway Concept
Author (2025)

Rather than isolating itself from this active urban fabric, the proposed building seeks to integrate seamlessly with the existing circulation patterns. The design intention is not only to respond to surrounding mobility but also to capture and redirect these movements into the community center.

To achieve this, a shaded pedestrian walkway is introduced as a connective spine shown on **figure 4.7**. This walkway provides thermal comfort while linking the two bus stops, enabling smooth transit exchange. More importantly, it guides pedestrians through the building complex itself, transforming circulation into an experiential sequence. By allowing movement to pass through the community center, the design activates the building internally, ensuring that it becomes an extension of the surrounding urban life rather than a detached object within it.

Convergence points (see figure 4.8) are spatial nodes where two or more movement trajectories intersect. Within the framework of social condenser theory, such intersections are not incidental but essential, as they create opportunities for interaction, overlap, and social exchange between different user groups. Therefore, the incorporation of convergence points becomes a deliberate and mandatory design strategy rather than a byproduct of circulation planning.

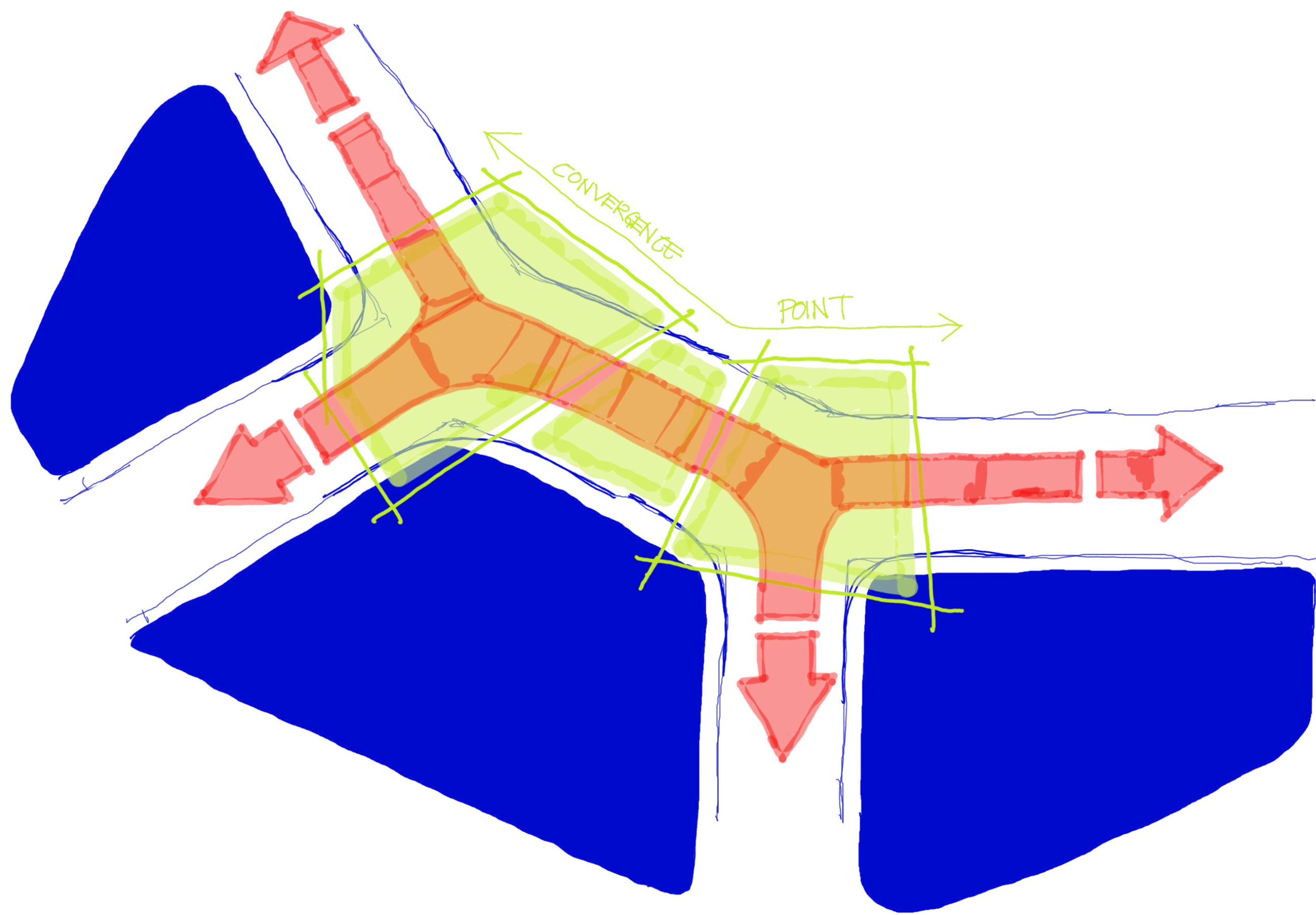


Figure 4.8
Convergence and Social Spine Concept
Author (2025)

In this design, convergence points are strategically positioned along major circulation routes shown on figure 4.8. At these nodes, spatial dimensions exceed minimum functional standards to accommodate flexibility and adaptability. The enlargement of these areas is intentional, allowing them to function beyond mere transitional spaces. Instead, they operate as informal gathering zones capable of supporting spontaneous activities, temporary programs, and social encounters.

The primary objective is to facilitate collisions between diverse social groups — or at the very least, to increase the probability of interaction among users. By providing generous and flexible spatial conditions at these intersections, circulation is transformed into an active social mechanism. Consequently, these expanded nodes become true convergence points: spatial condensers that amplify social engagement within the building.

As part of the building's sustainability strategy, passive environmental design—particularly natural ventilation—is integrated into the architectural approach. Given the building typology, which accommodates predominantly large and open spaces, increased ceiling heights are not only spatially appropriate but also environmentally advantageous.

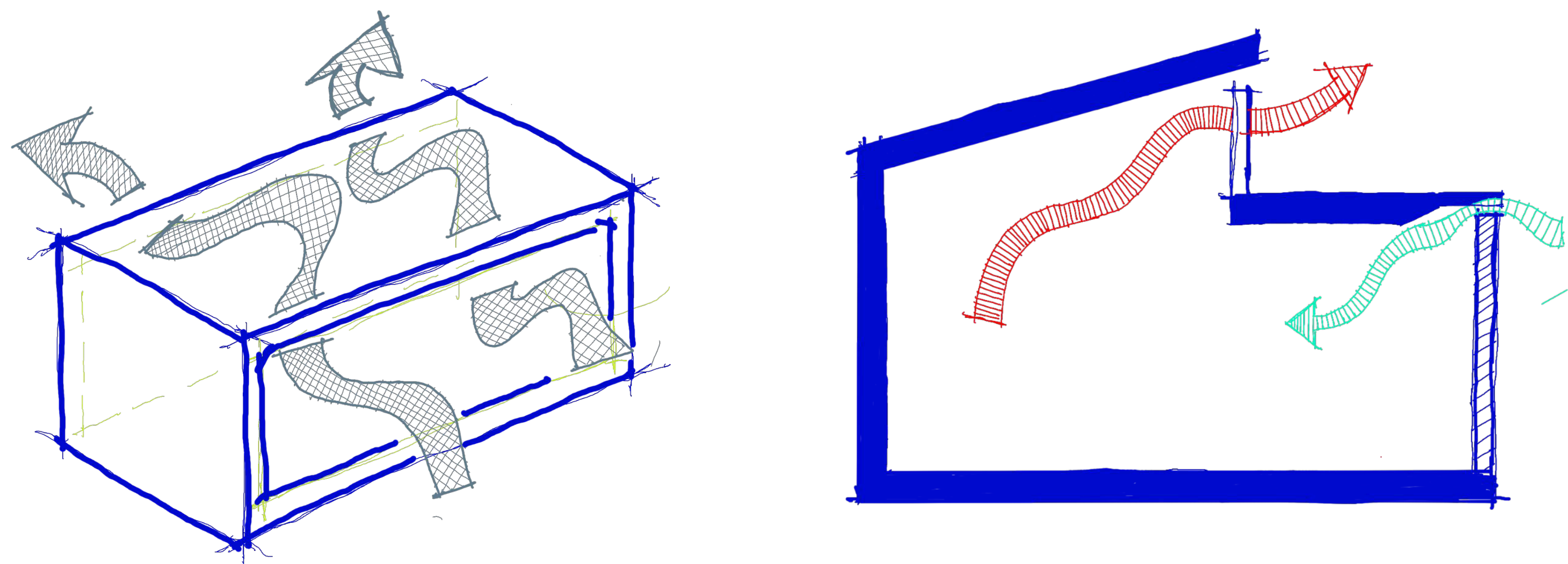


Figure 4.9
Building Ventilation Concept
Author (2025)

Figure 4.9 explains the design process by elevating the ceiling beyond the minimum standard and incorporating clerestory openings, the design enables both daylight penetration and effective stack ventilation. The increased vertical volume allows warm air, which is less dense, to rise toward the upper level of the space. Openings positioned at the clerestory level facilitate the release of accumulated hot air, creating negative pressure that draws cooler air inward through lower-level openings.

This vertical air movement establishes a passive cooling mechanism that reduces reliance on mechanical ventilation systems. As a result, areas such as the second floor—designed to accommodate larger, more open activities—can maintain thermal comfort with minimized energy consumption.

As the community center is conceived through a social condenser approach—aimed at fostering social cohesion across diverse segments of the population—the architectural expression must avoid privileging or symbolically aligning with any single social, cultural, or economic group. Consequently, one of the primary design criteria is the establishment of a middle-ground identity: a form that feels collectively owned rather than exclusive.

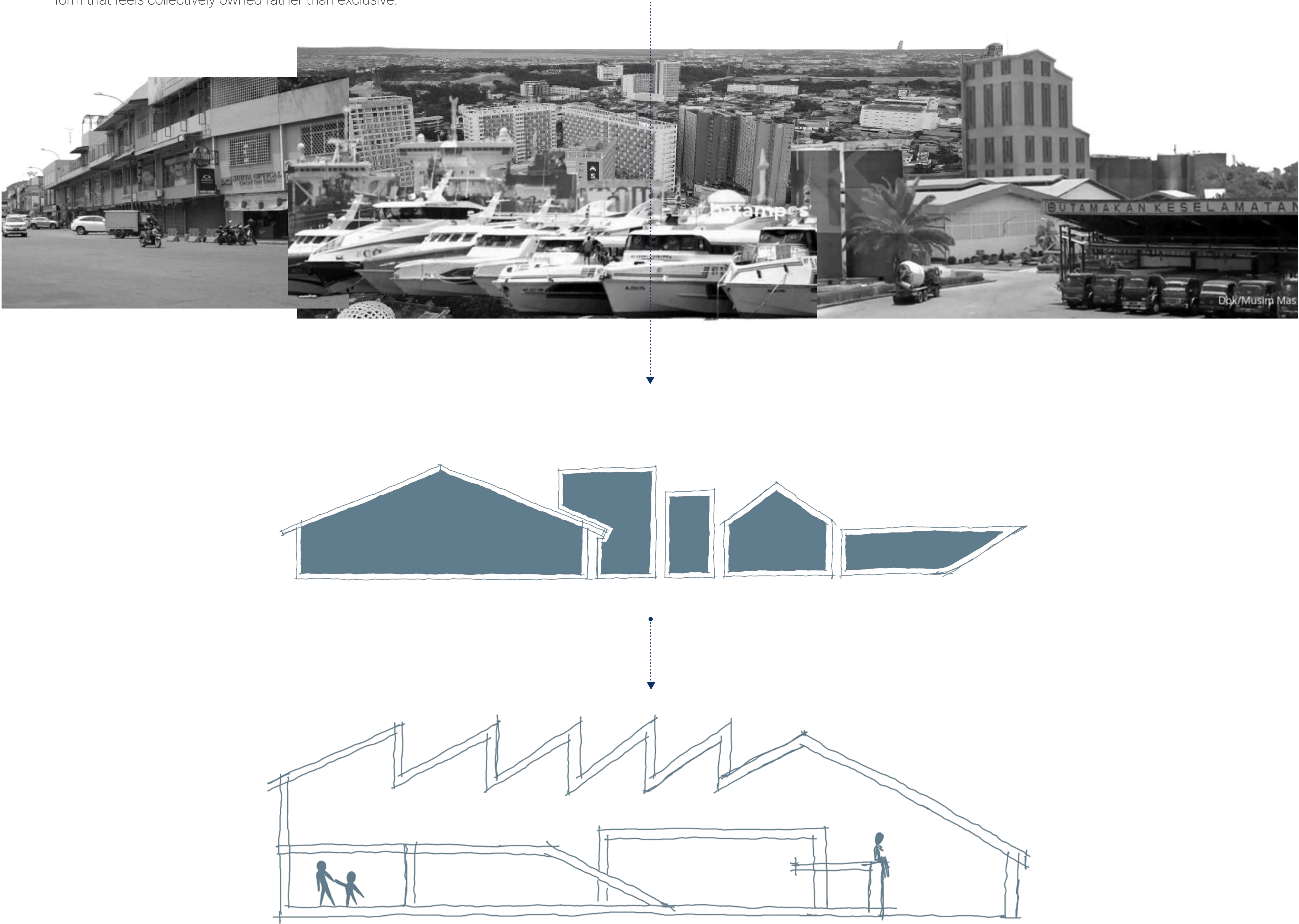
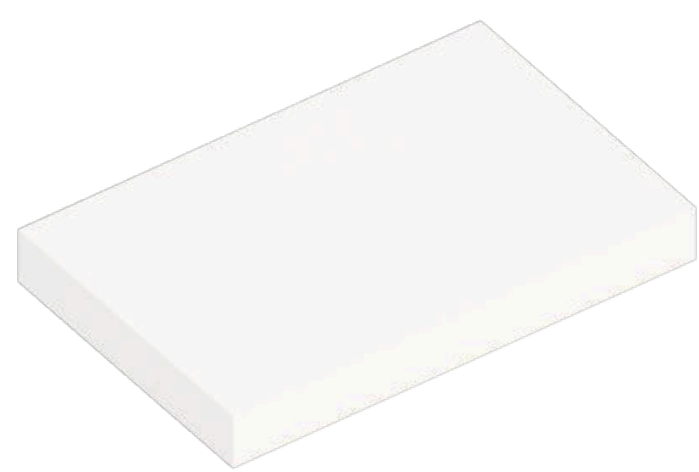


Figure 4.10
Form Exploration
Author (2025)

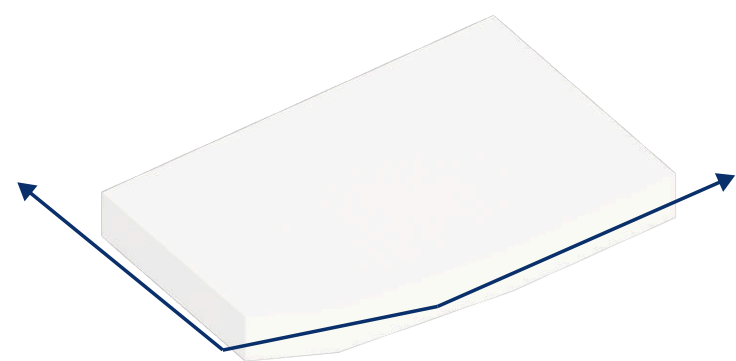
To achieve this, the building's formal language is derived from shared urban experiences and collective identity rather than specific cultural iconography. Shown on **figure 4.10** References are drawn from industry, urbanism, and everyday city life—elements that are commonly experienced across social strata. Furthermore, Batam's identity as an island city plays a crucial role in shaping the form. As a city strongly associated with maritime mobility—where marine transport becomes a primary gateway for arrival and departure—the dynamics of harbor infrastructure, industrial structures, and port-related geometries inform the architectural articulation.

Through these references, the building form embodies a familiar yet inclusive character, reflecting the shared spatial memory of the city while maintaining neutrality. In doing so, the architecture reinforces its role as a social condenser: a civic space that belongs equally to the broader population.

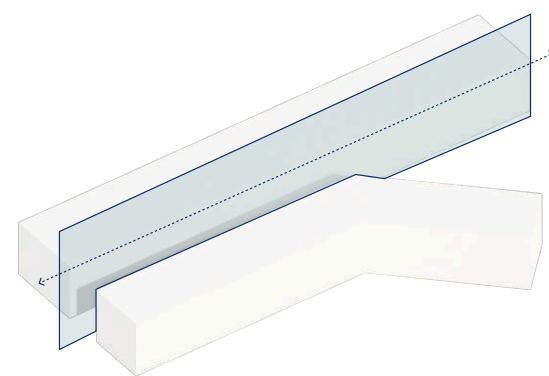
Mass Transformation



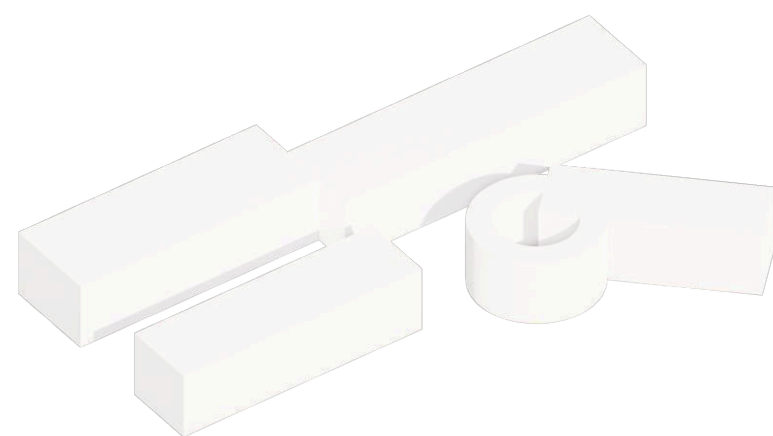
The design process begins with establishing the total site area, followed by deductions based on local regulatory constraints, such as required setbacks from roads and pedestrian pathways.



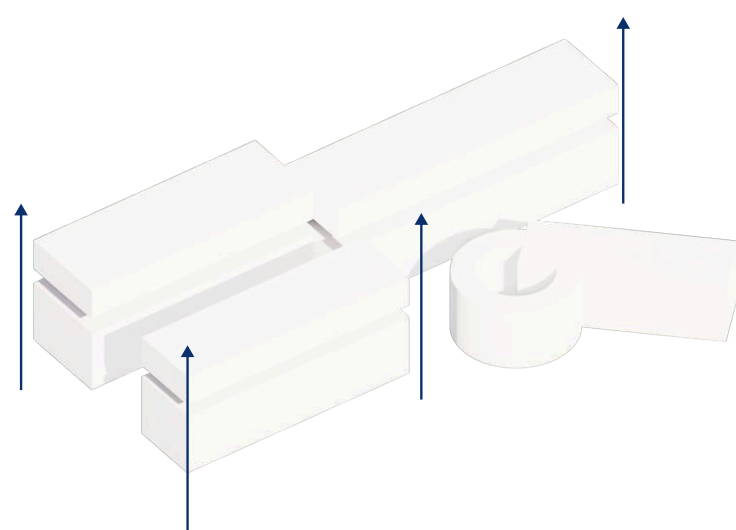
An existing pedestrian-active pathway cuts along the site edge, shaping the perimeter and generating the initial massing form.



To generate a central social spine, the building mass is strategically carved to connect two primary entry points across the site, forming the main corridor.



Following property size calculations, the mass is expanded and oriented to prioritize frontages along the primary street and pedestrian pathway.



To comply with building codes and regulations, the final expansion occurs vertically. This upward growth also reduces the building footprint, minimizing potential impacts on user comfort at ground level.

Figure 4.11
Mass Transformation
Author (2025)

5

Design
Outcome

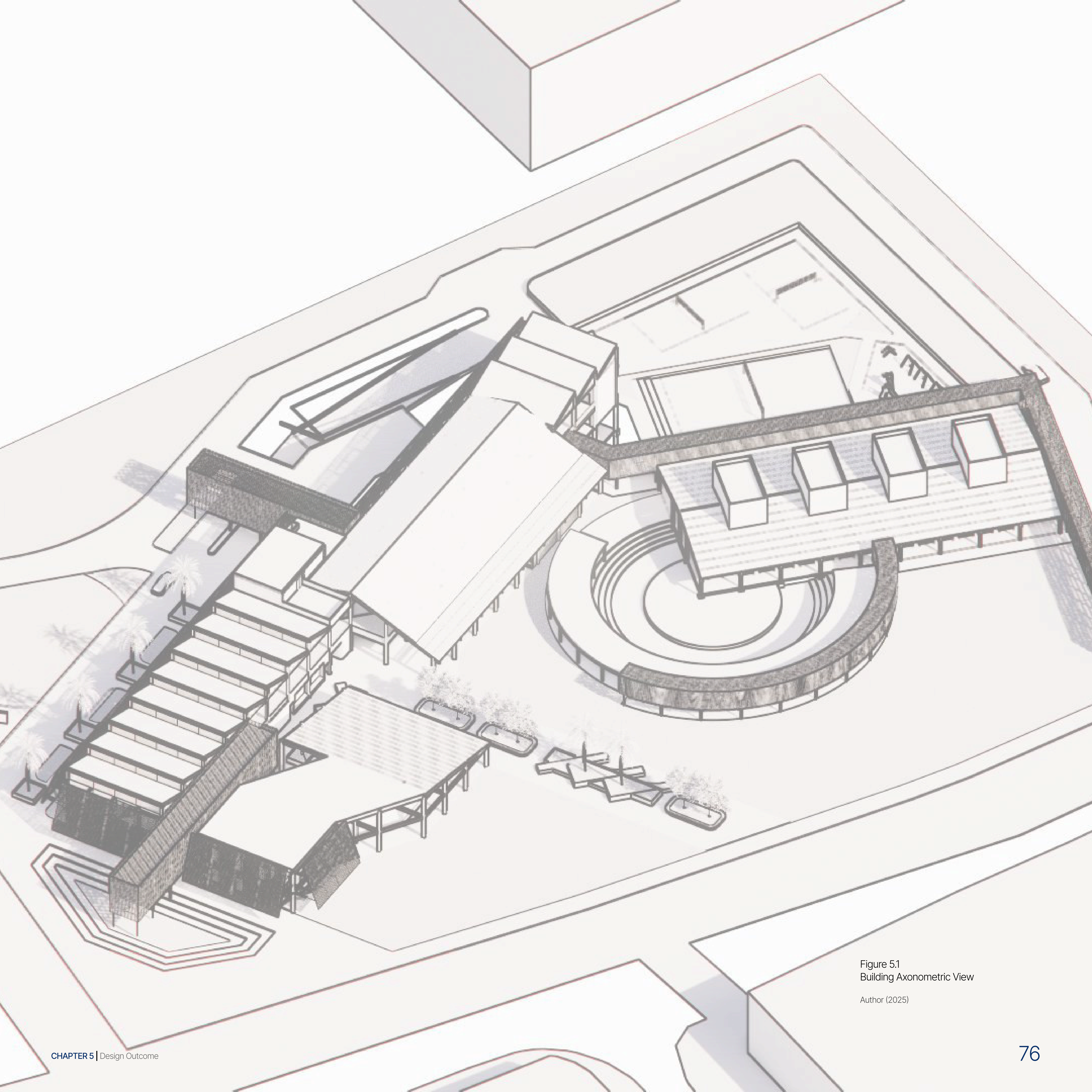


Figure 5.1
Building Axonometric View
Author (2025)

General Design Description

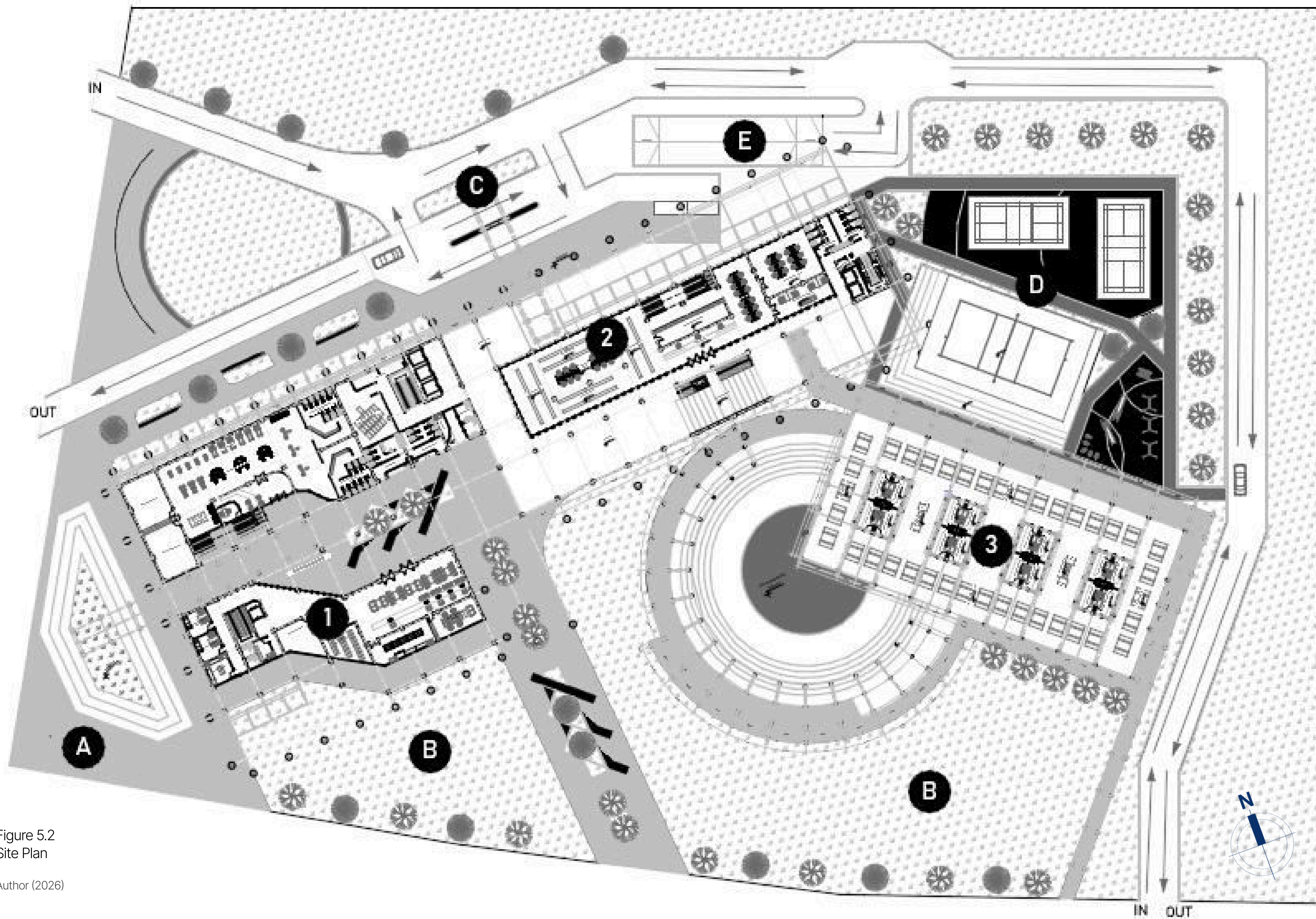


Figure 5.2
Site Plan

Author (2026)

Site Plan

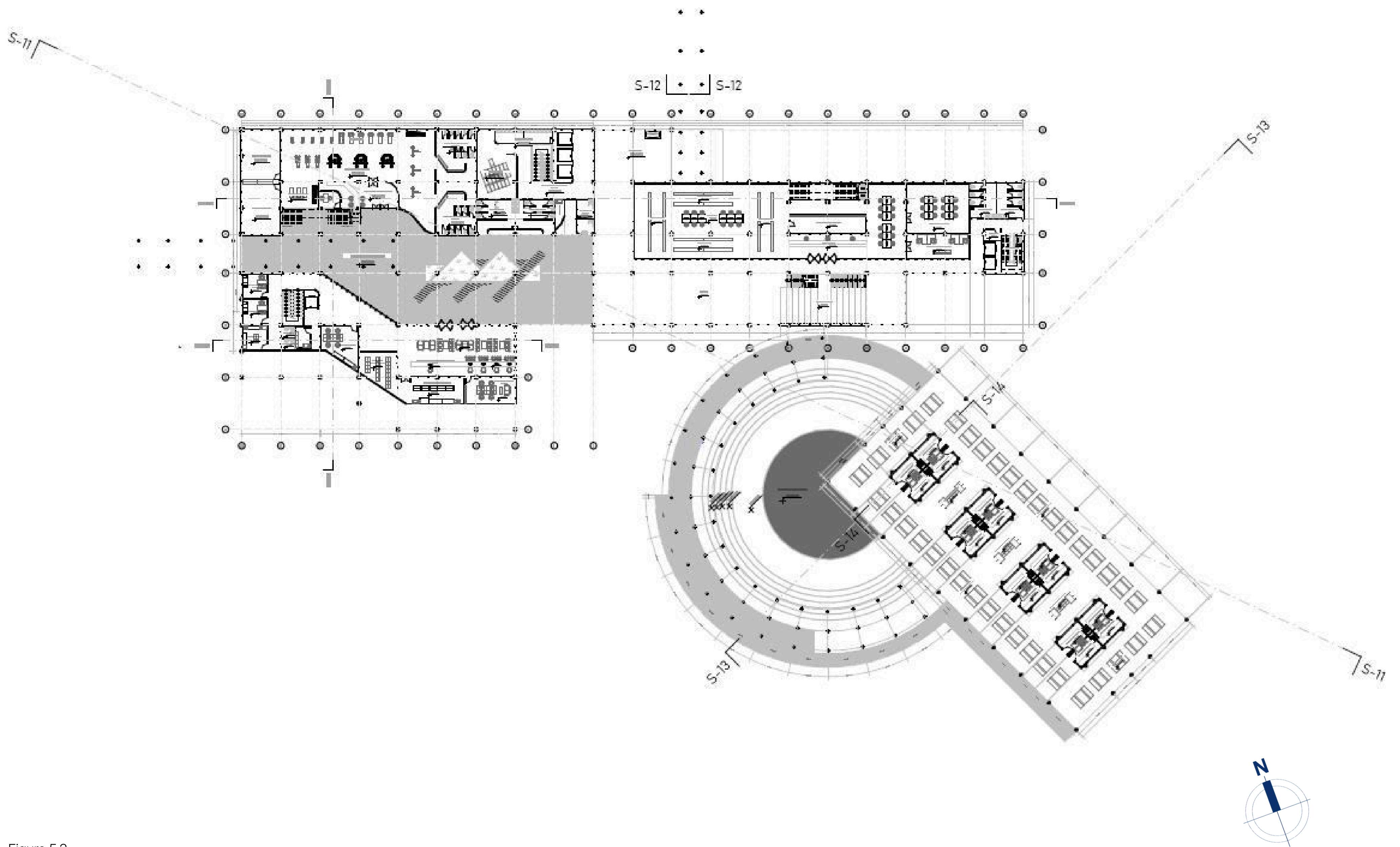


Figure 5.3
Ground Floor Plan

Author (2026)

Ground Floor Plan

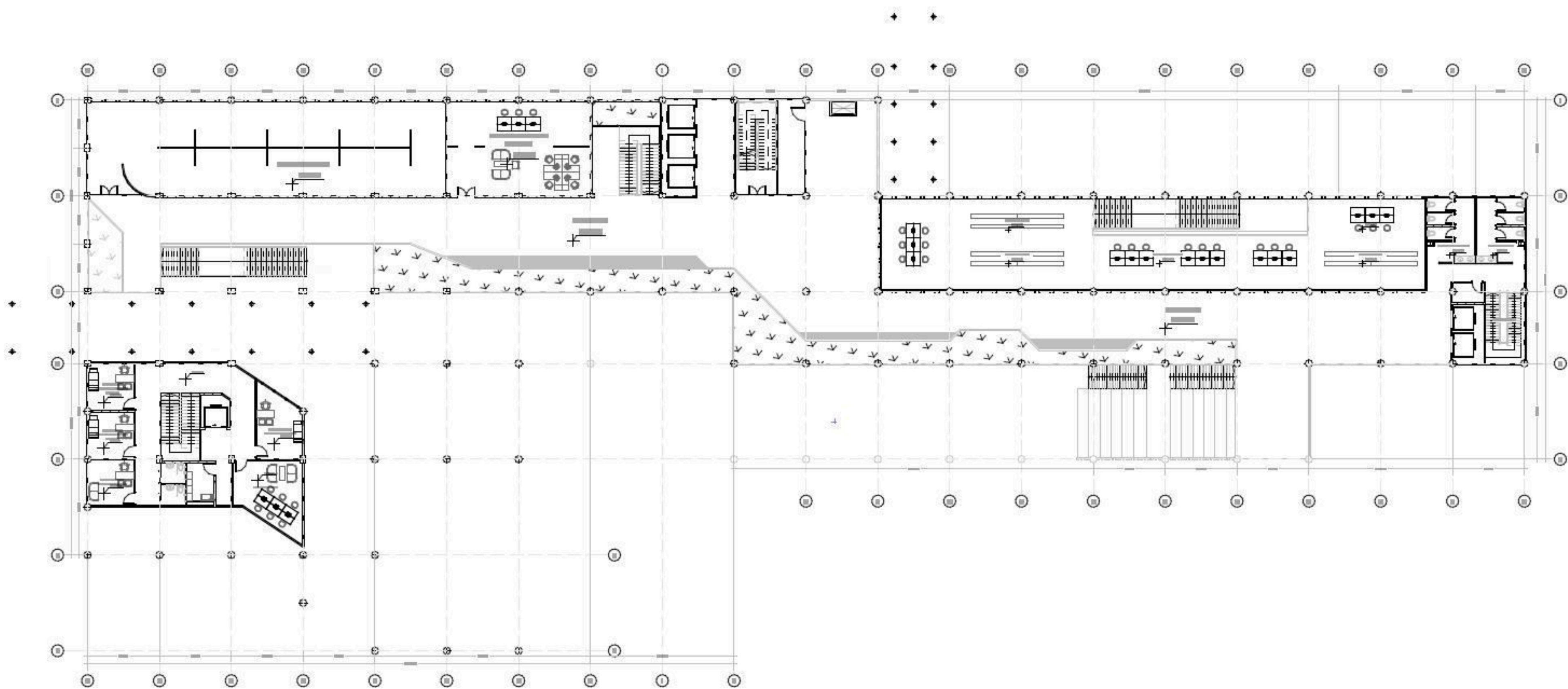


Figure 5.4
First Floor Plan
Author (2026)

First Floor Plan

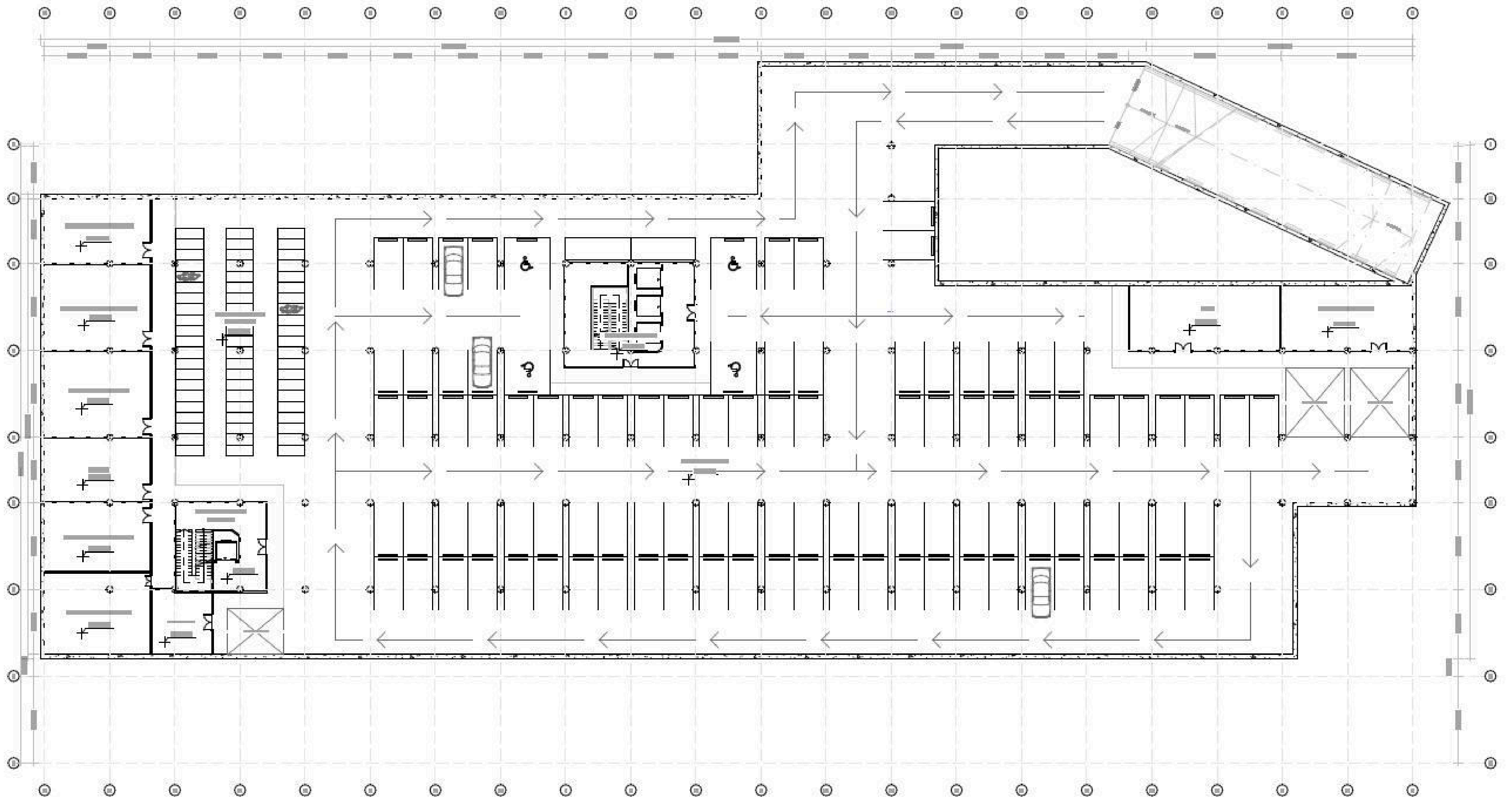


Figure 5.5
Basement Plan

Author (2026)

Basement Plan

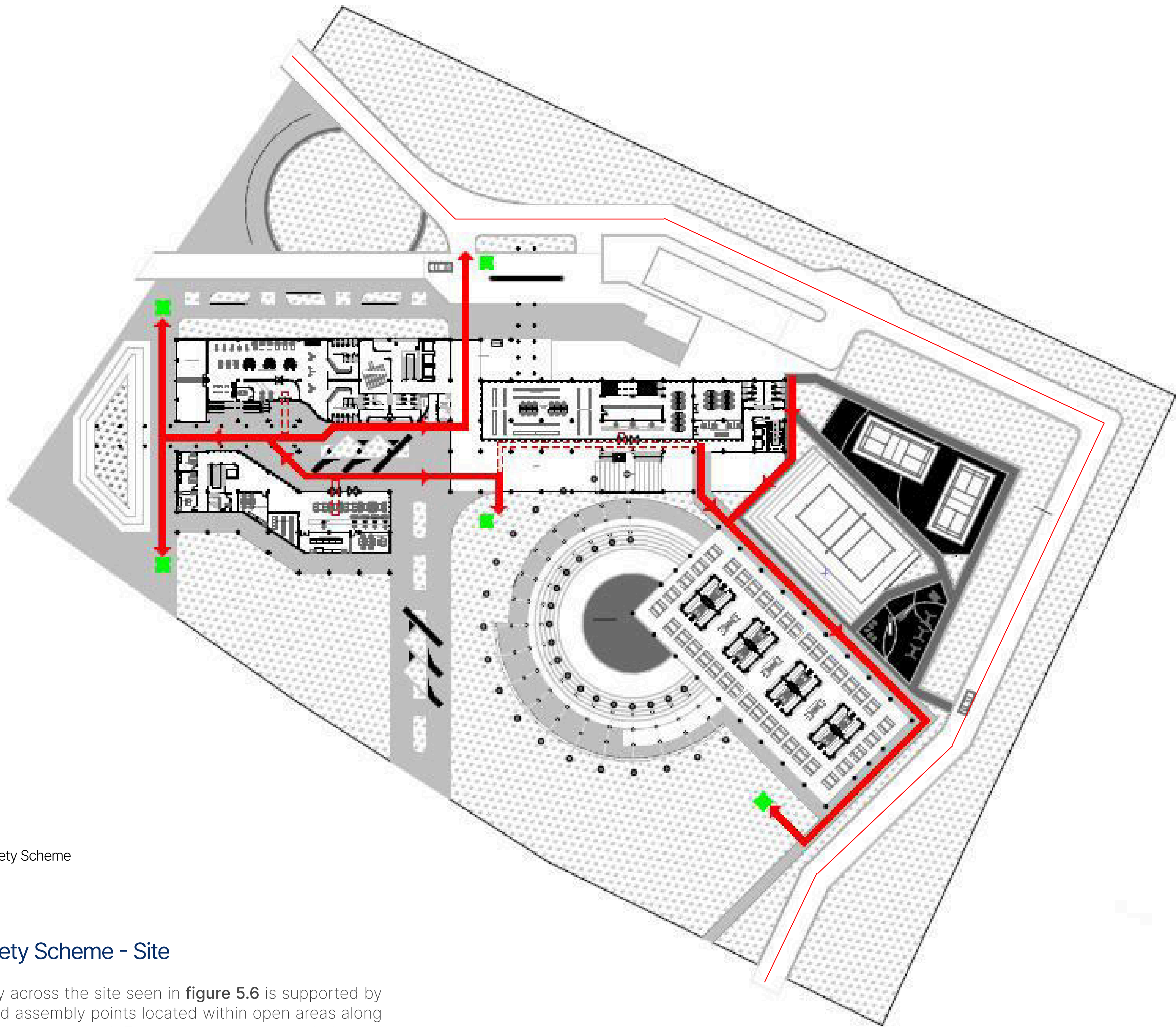


Figure 5.6
Site Fire Safety Scheme

Author (2026)

Fire Safety Scheme - Site

Fire safety across the site seen in **figure 5.6** is supported by designated assembly points located within open areas along the building perimeter. A 7-meter-wide perimeter belt road along the northern and eastern edges of the site provides direct access for fire trucks and other emergency service vehicles, ensuring adequate maneuverability and response coverage.

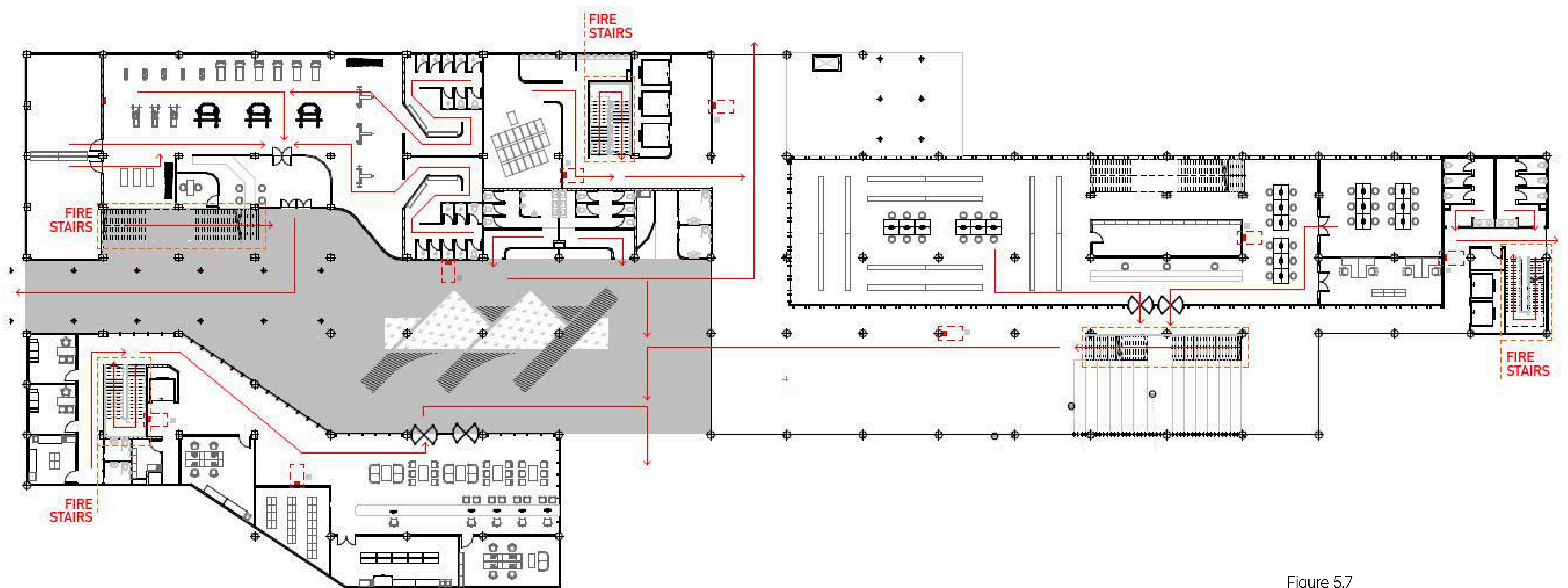


Figure 5.7
Ground Floor Fire Safety Scheme - A
Author (2026)

Fire Safety Scheme - Ground Floor A

Fire safety within the building seen in **figure 5.7** is addressed through the provision of hydrant boxes installed at 30-meter intervals along primary circulation routes, complemented by fire extinguishers placed at critical points. The building is also equipped with four fire-rated staircases to ensure safe, efficient evacuation during fire-related emergencies.

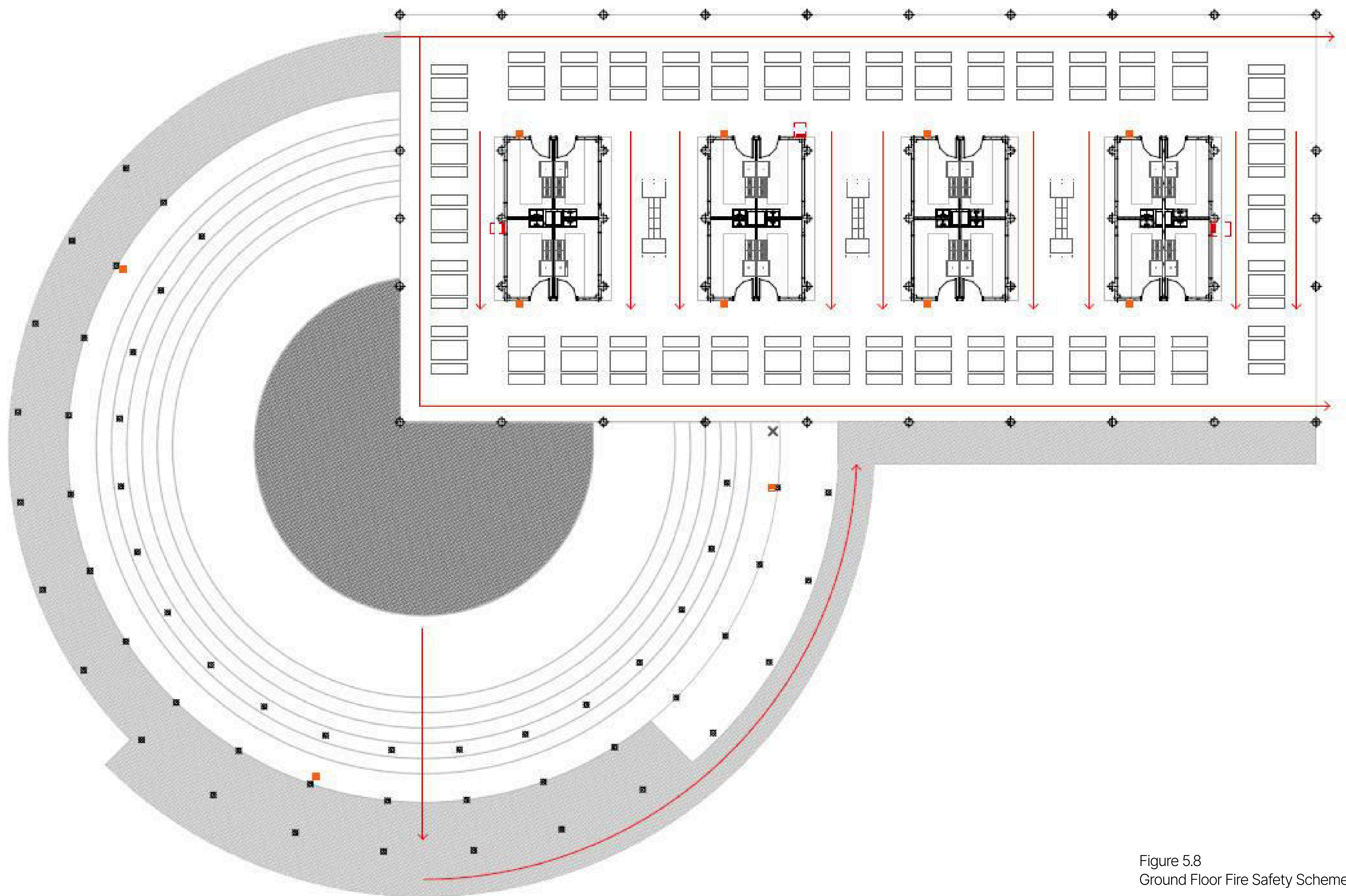


Figure 5.8
Ground Floor Fire Safety Scheme - B

Author (2026)

Fire Safety Scheme - Ground Floor B

Fire safety within the building seen in **figure 5.8** is addressed through the provision of hydrant boxes installed at 30-meter intervals along primary circulation routes, complemented by fire extinguishers placed at critical points. The building is also equipped with four fire-rated staircases to ensure safe, efficient evacuation during fire-related emergencies.

Elevation Drawings

North East Elevation

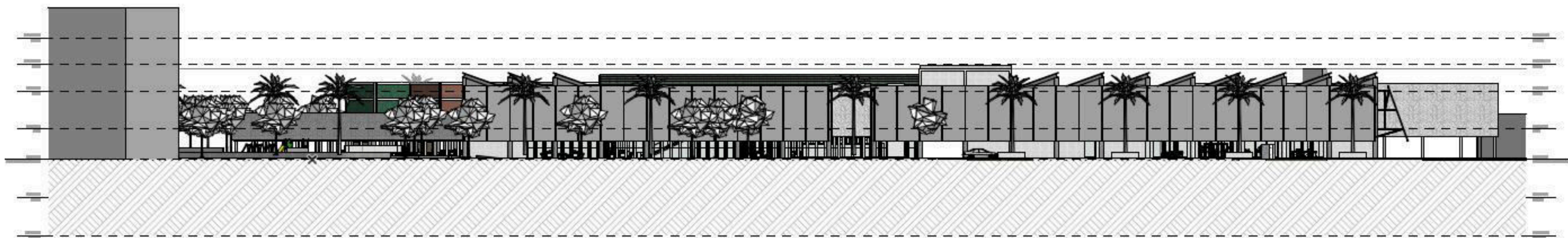


Figure 5.9
North East Elevation
Author (2026)

North West Elevation



Figure 5.10
North West Elevation
Author (2026)

Elevation Drawings

South East Elevation



Figure 5.11
South East Elevation
Author (2026)

South West Elevation

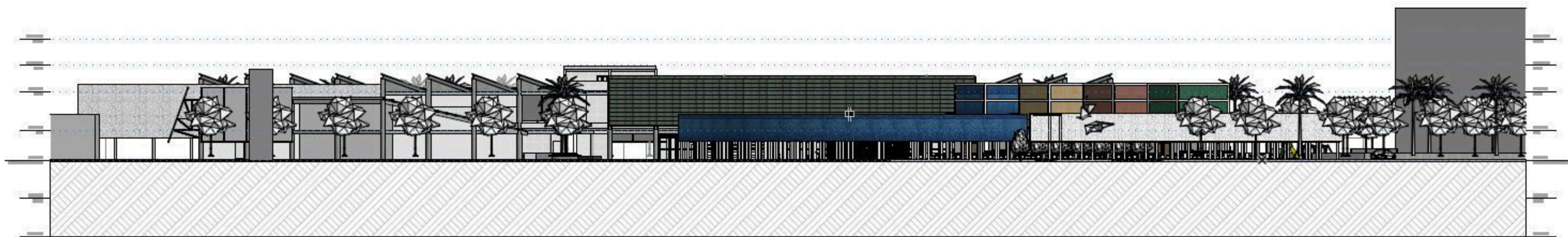


Figure 5.12
South West Elevation
Author (2026)

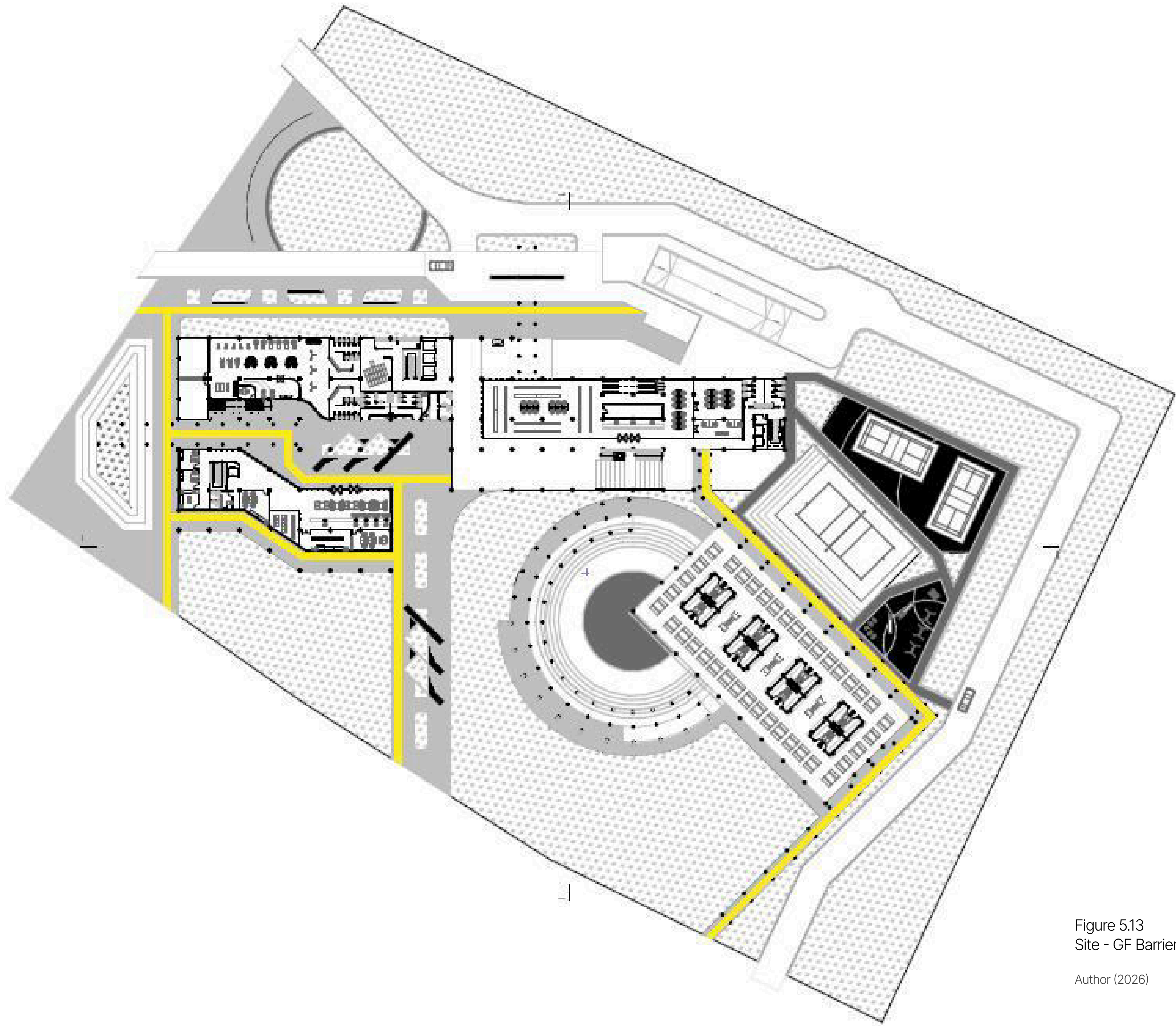


Figure 5.13
Site - GF Barrier Free Scheme
Author (2026)

Barrier Free Scheme - Ground Floor & Site

To support accessibility for diverse user groups, the building is equipped with tactile paving seen in **figure 5.13** to assist visually impaired users along key circulation routes. In addition, each building is provided with at least one elevator to ensure inclusive vertical access across all levels.

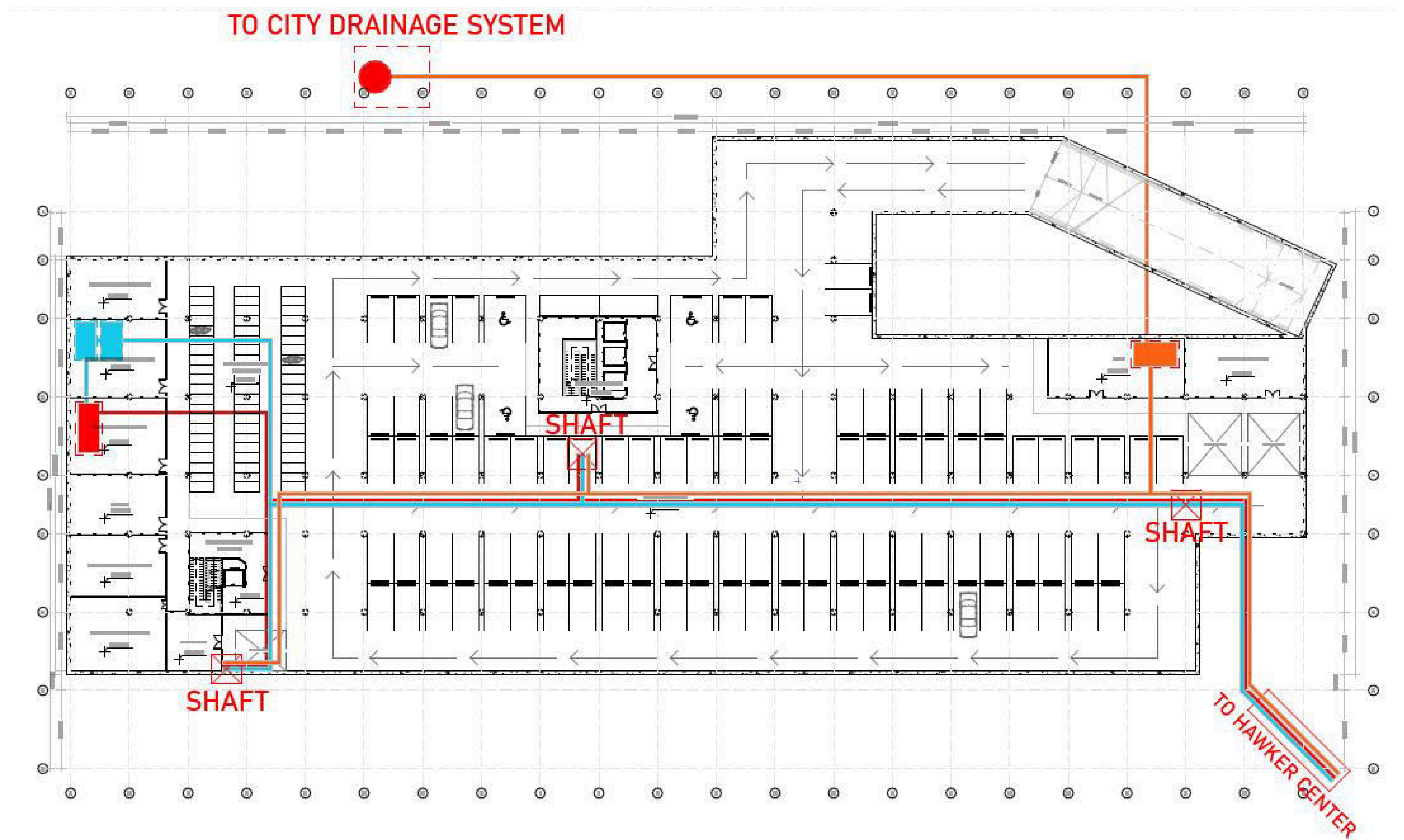
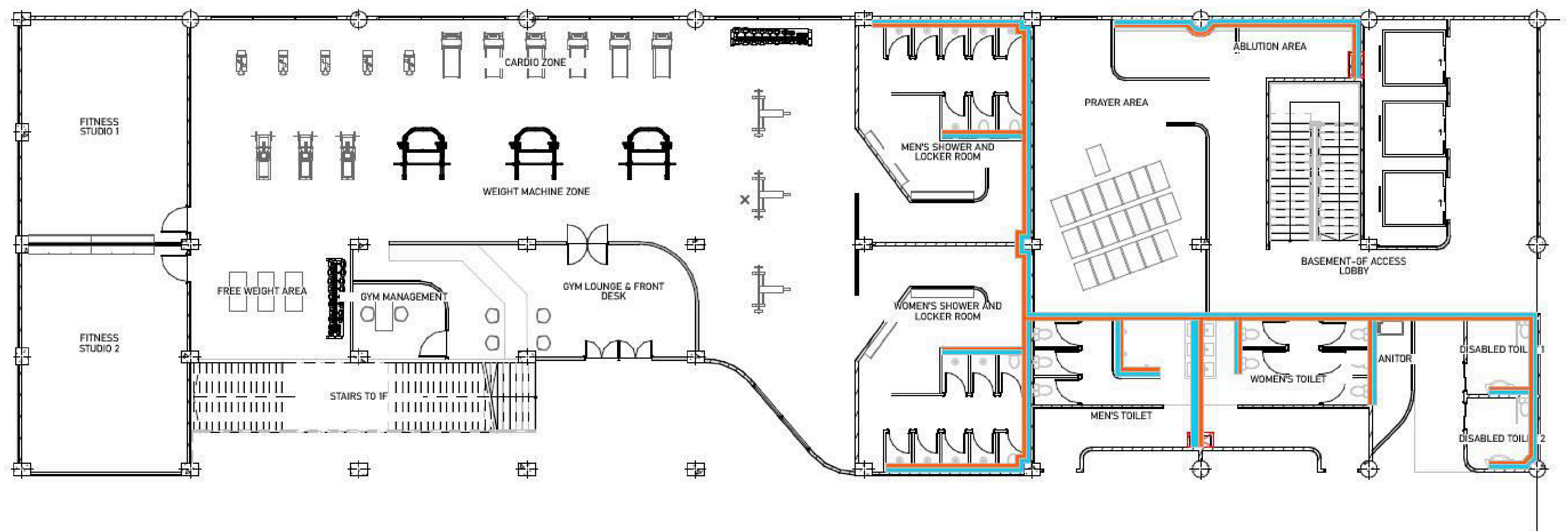


Figure 5.14
Water Distribution Scheme - Basement

Author (2026)

Water Distribution Scheme - Basement

Figure 5.14-5.19 shows that clean water is supplied by the municipal water provider (PDAM) and distributed for sanitary uses, including toilets, dishwashing in the hawker center, laboratory functions, and hygiene-related requirements within the clinic. The clean water system also supports the fire protection network, with sprinkler demand served by a dedicated fire pump located in the basement. Wastewater is collected and treated on-site through a sewage treatment plant (STP) before being discharged into the municipal drainage system.

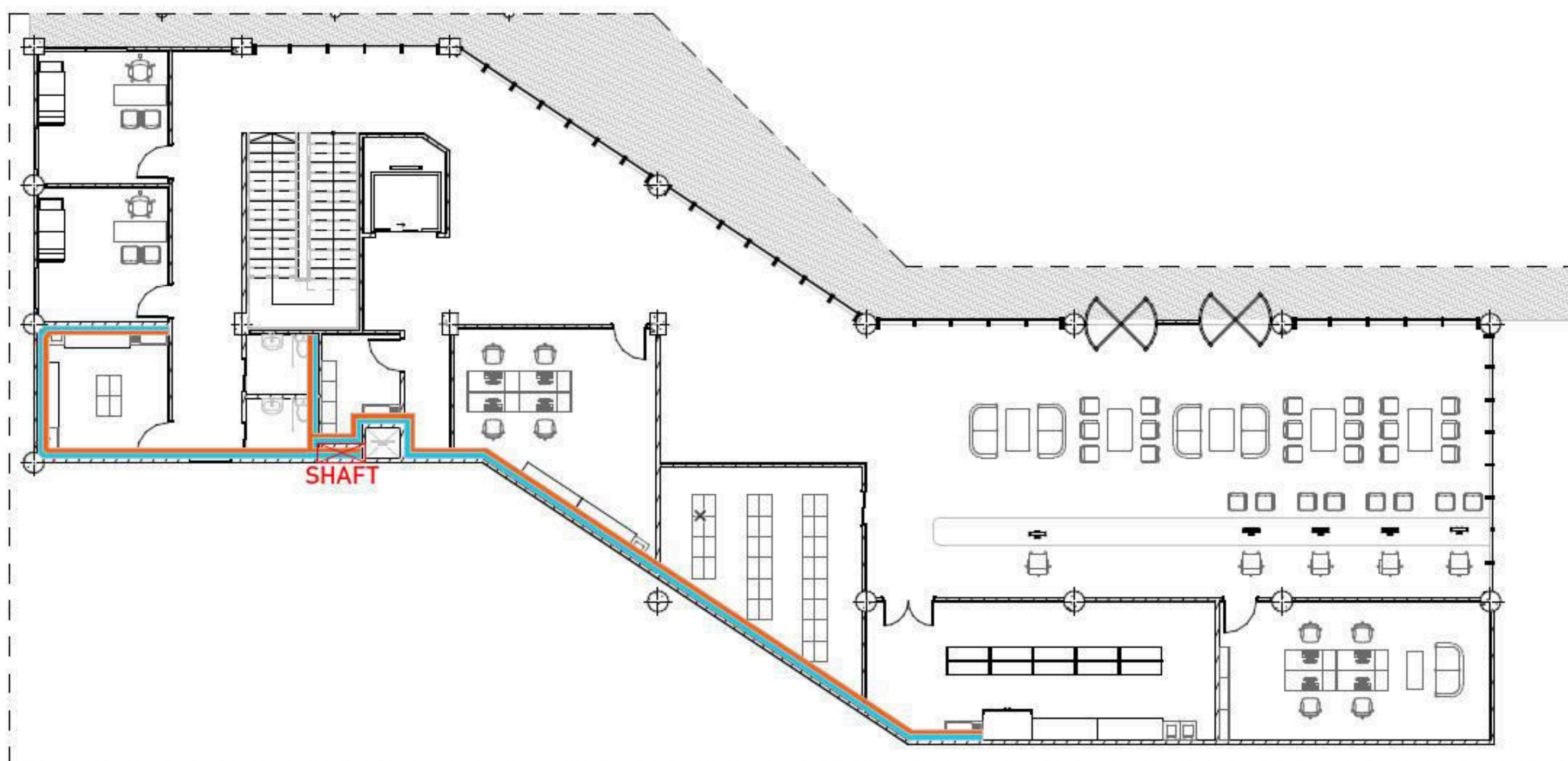


Water Distribution Scheme - Ground Floor

Fitness Center - Mushalla - Toilet

Figure 5.15
Water Distribution Scheme - GF

Author (2026)



Water Distribution Scheme - Ground Floor

Clinic Ground Floor

Figure 5.16
Water Distribution Scheme - GF

Author (2026)

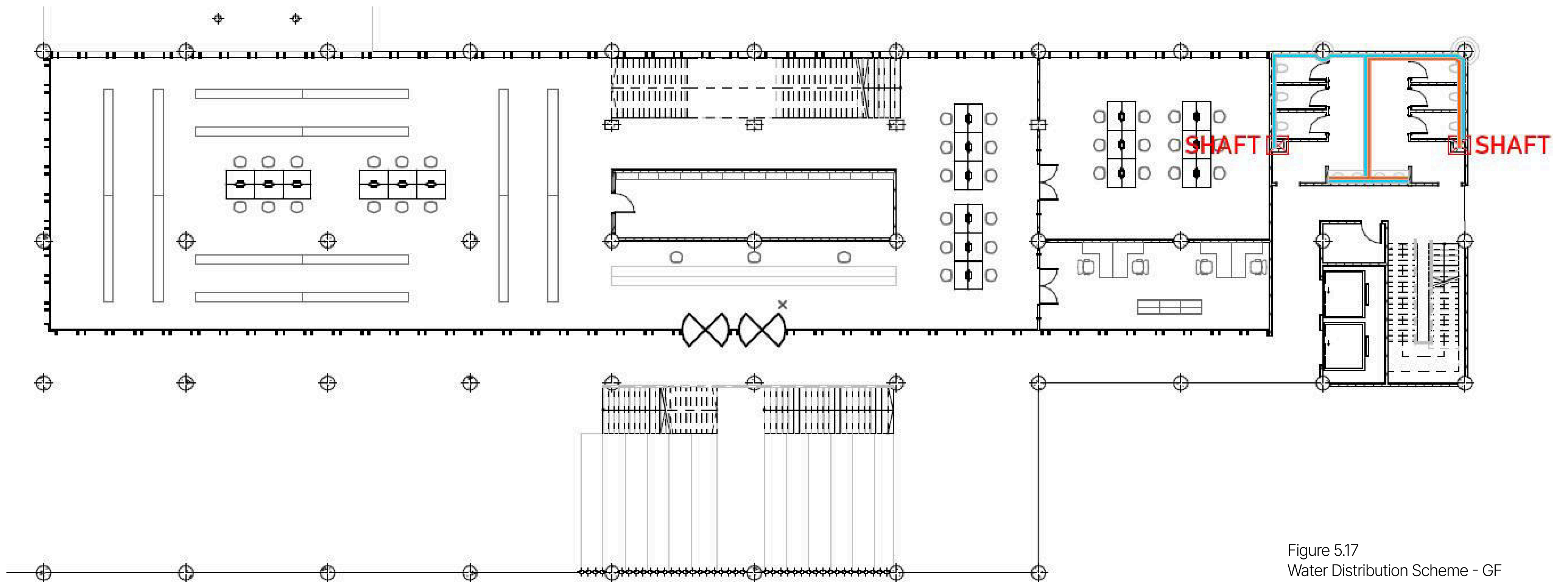


Figure 5.17
Water Distribution Scheme - GF
Author (2026)

Water Distribution Scheme - Ground Floor

South Wing

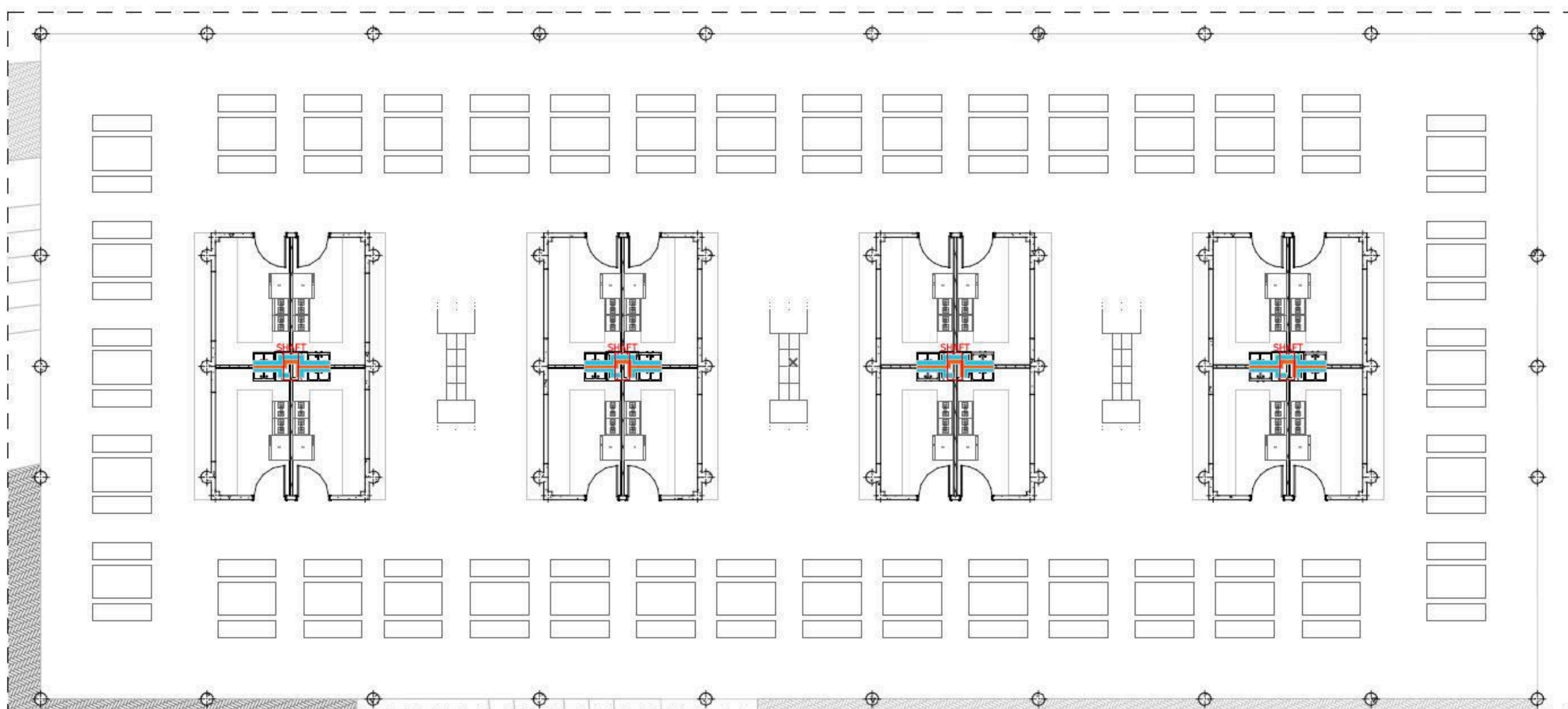
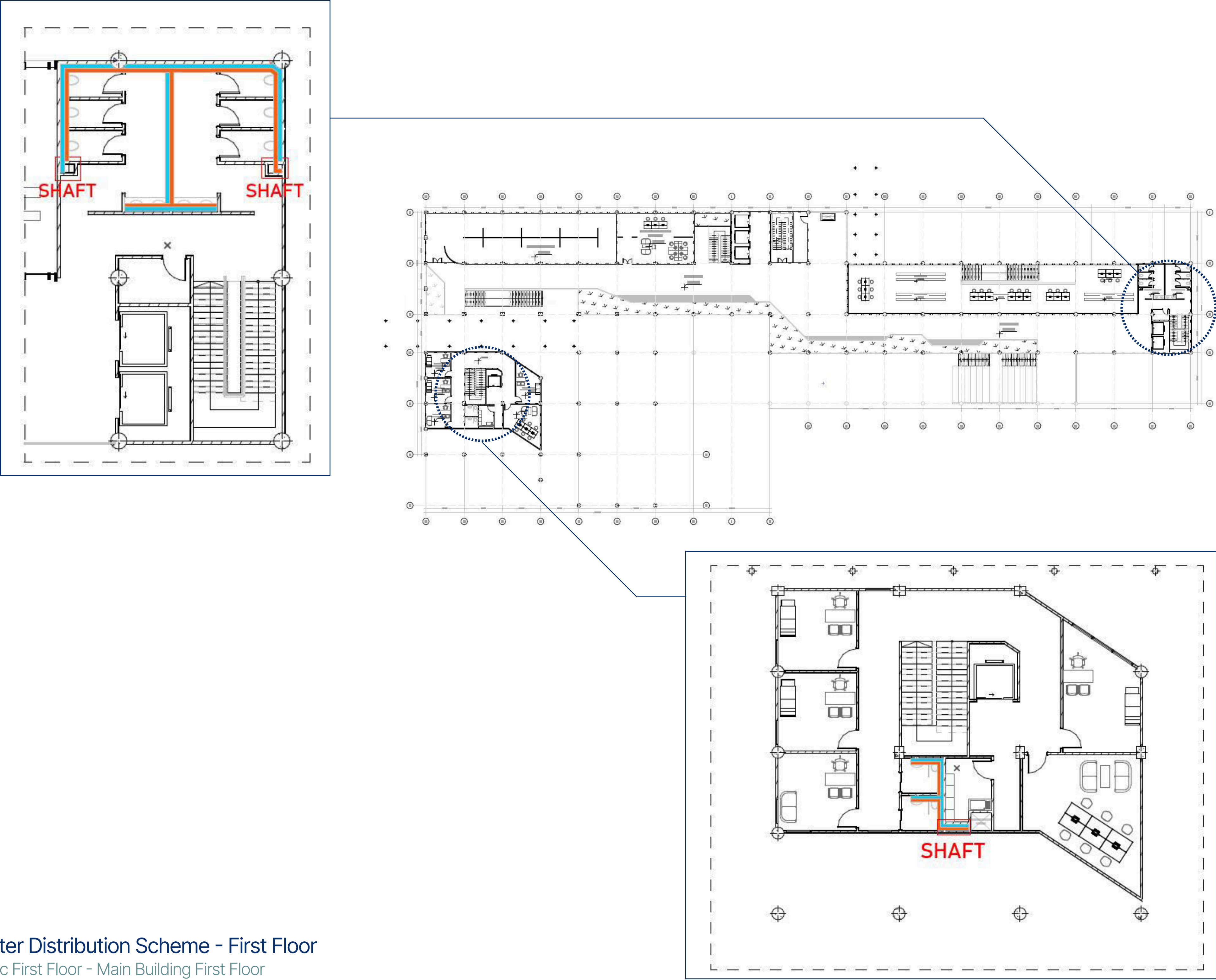


Figure 5.18
Water Distribution Scheme - GF
Author (2026)

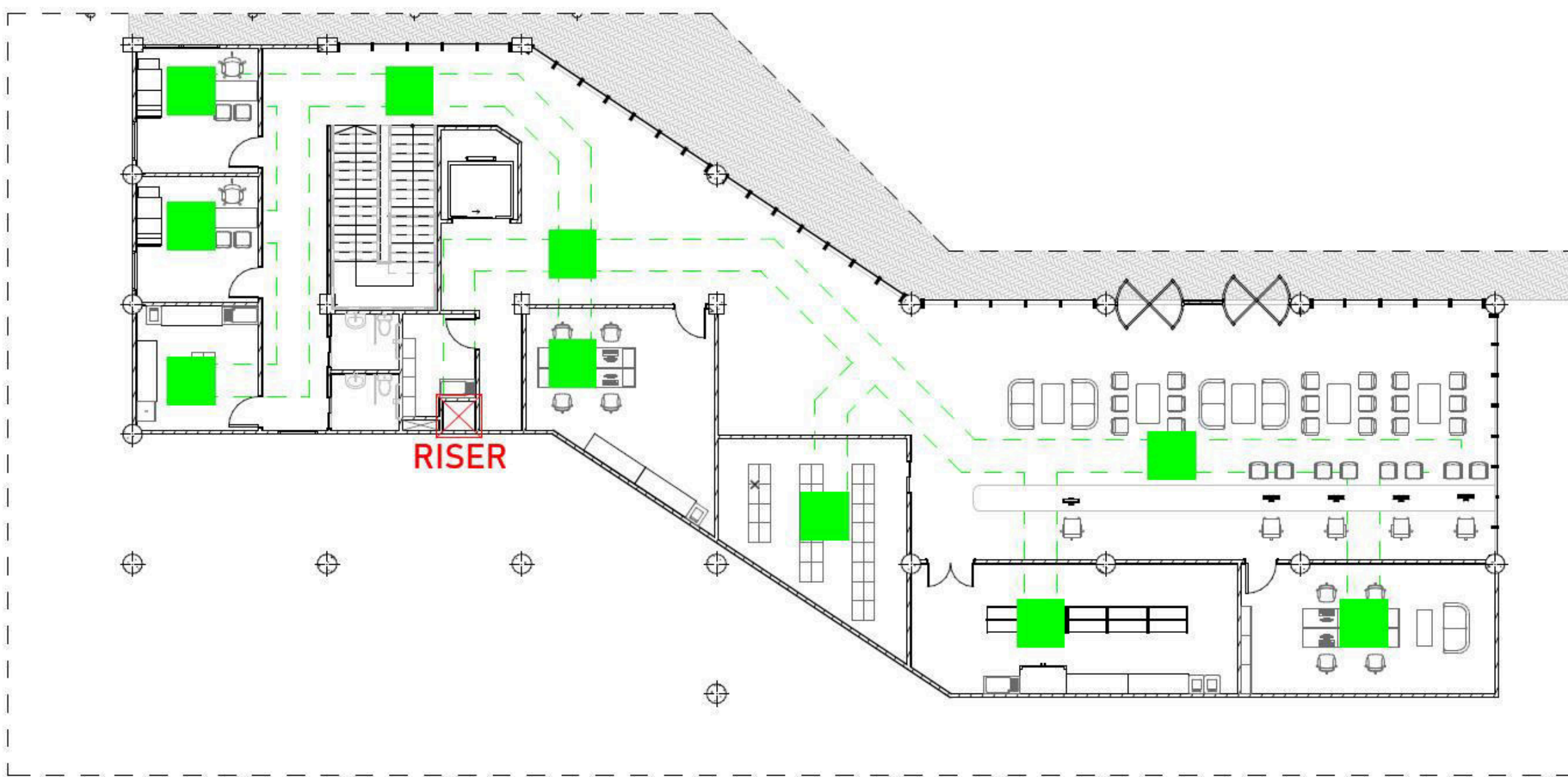
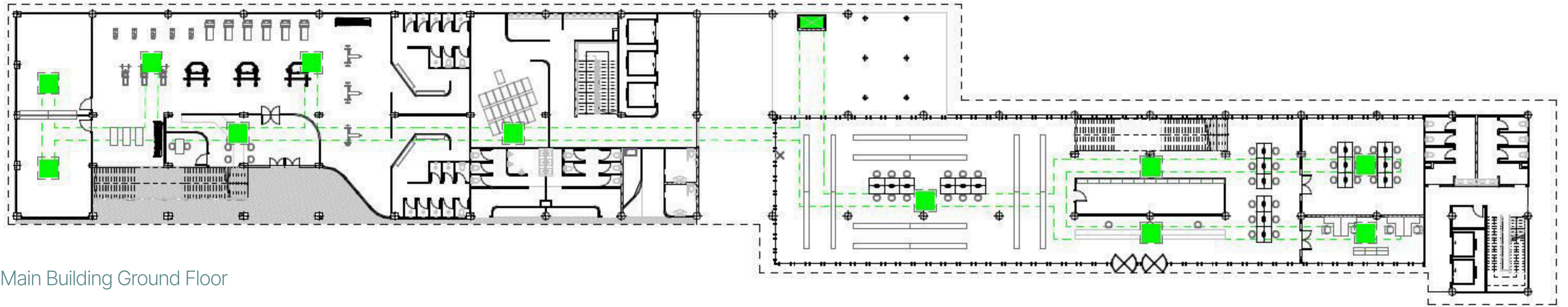
Water Distribution Scheme - Ground Floor

Hawker Center



Water Distribution Scheme - First Floor
Clinic First Floor - Main Building First Floor

Figure 5.19
Water Distribution Scheme - First Floor
Author (2026)



First Floor Mechanical Ventilation Scheme

Clinic Ground Floor and First Floor

Figure 5.20
First Floor Ventilation Scheme
Author (2026)

The mechanical ventilation (**see figure 5.20**) system is organized along a centralized distribution line that runs parallel to the primary circulation corridor. The staggered dashed lines represent the main ducting network, branching systematically into individual rooms and functional zones. Green squares indicate air supply outlets, strategically positioned to ensure even air distribution across consultation rooms, waiting areas, treatment spaces, and staff zones.

On both the clinic ground floor and first floor, the ducting follows the internal spatial hierarchy, minimizing long horizontal runs while maintaining efficient airflow delivery. Air is supplied through ceiling-mounted outlets located near the center or service side of each room to promote uniform ventilation and prevent stagnant air pockets. The system is vertically connected through a designated riser, enabling continuous air distribution between floors while maintaining a compact and coordinated service layout. Overall, the scheme prioritizes efficiency, balanced airflow coverage, and integration with the building's structural and spatial grid.

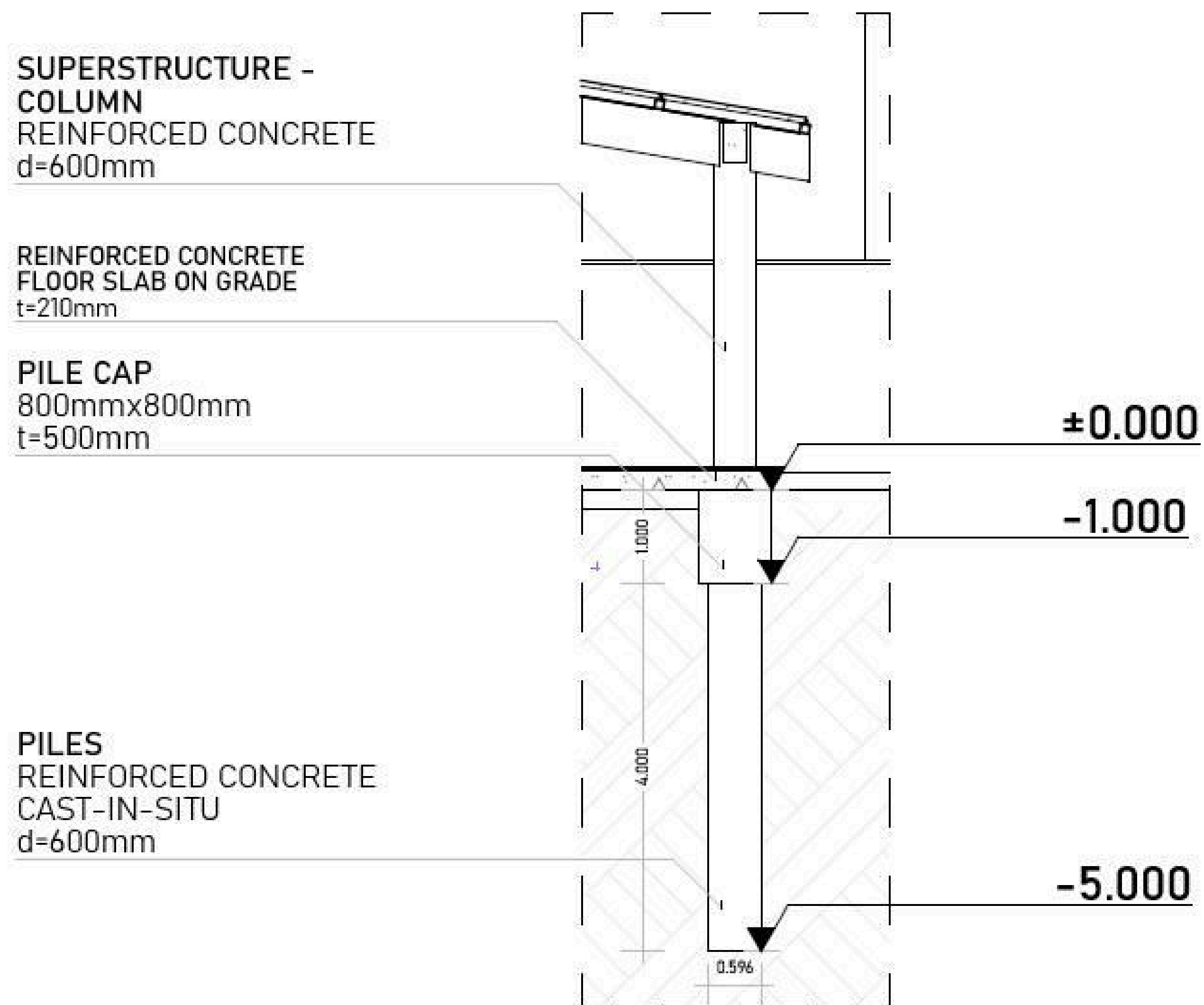


Figure 5.21
Foundation Detail

Author (2026)

Building Structural System - Foundation

Borepile Foundation

The foundation system (see **figure 5.21**) employs cast-in-situ bored piles with a diameter of 600 mm and an embedment depth of approximately 5,000 mm to ensure structural stability. Grid runs on a 6×8m grid system.

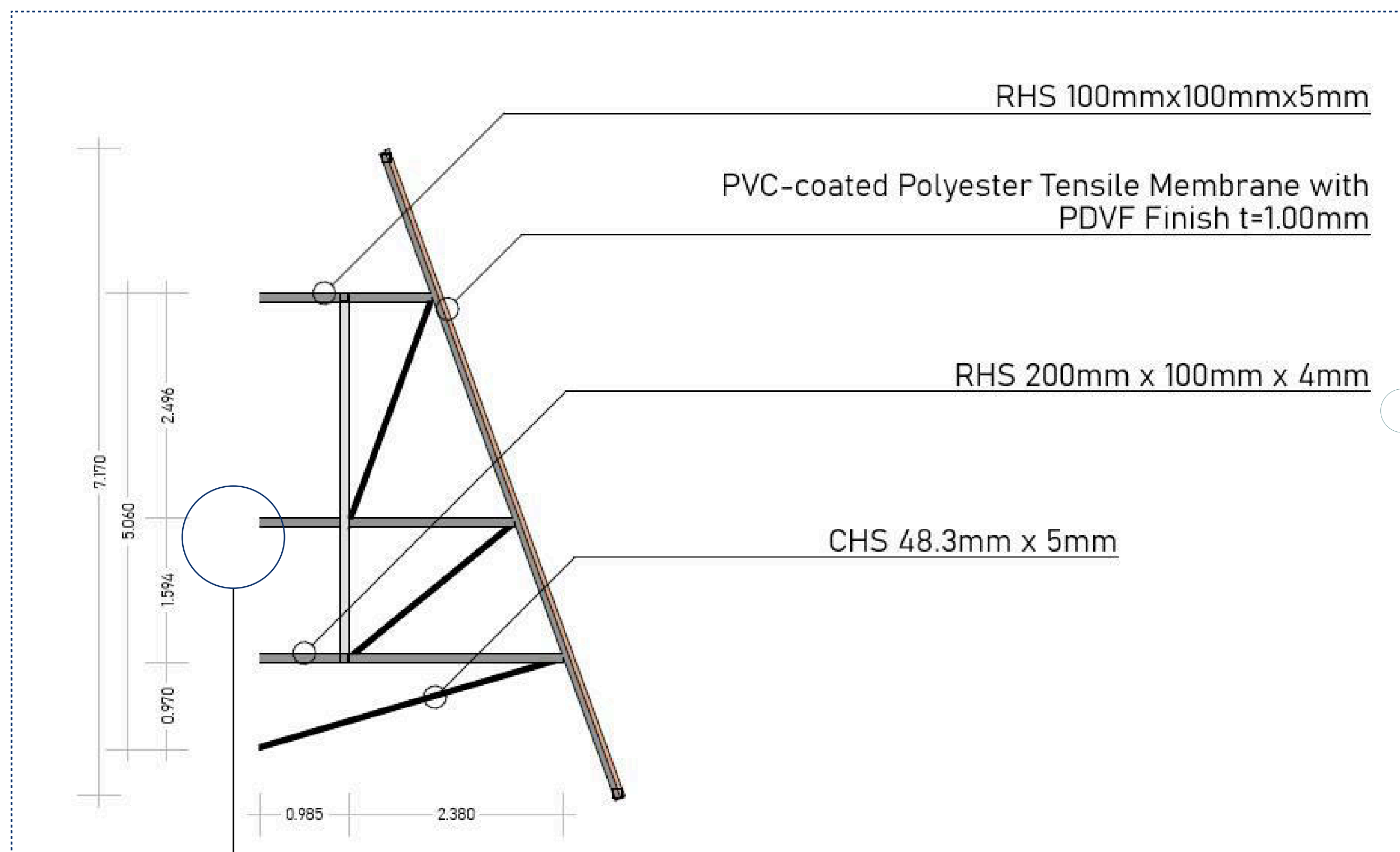


Figure X
Secondary Skin Detail

Author (2026)

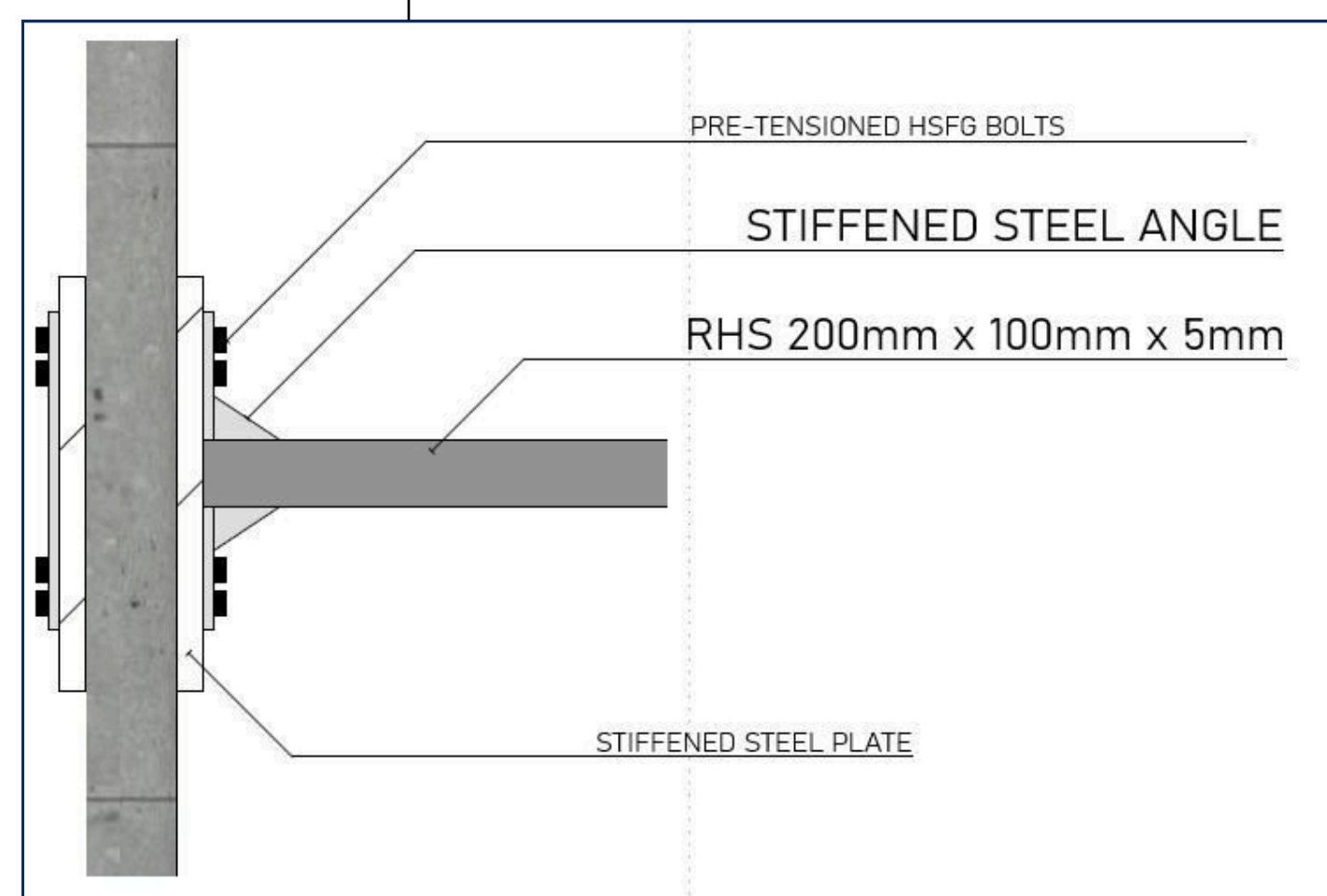
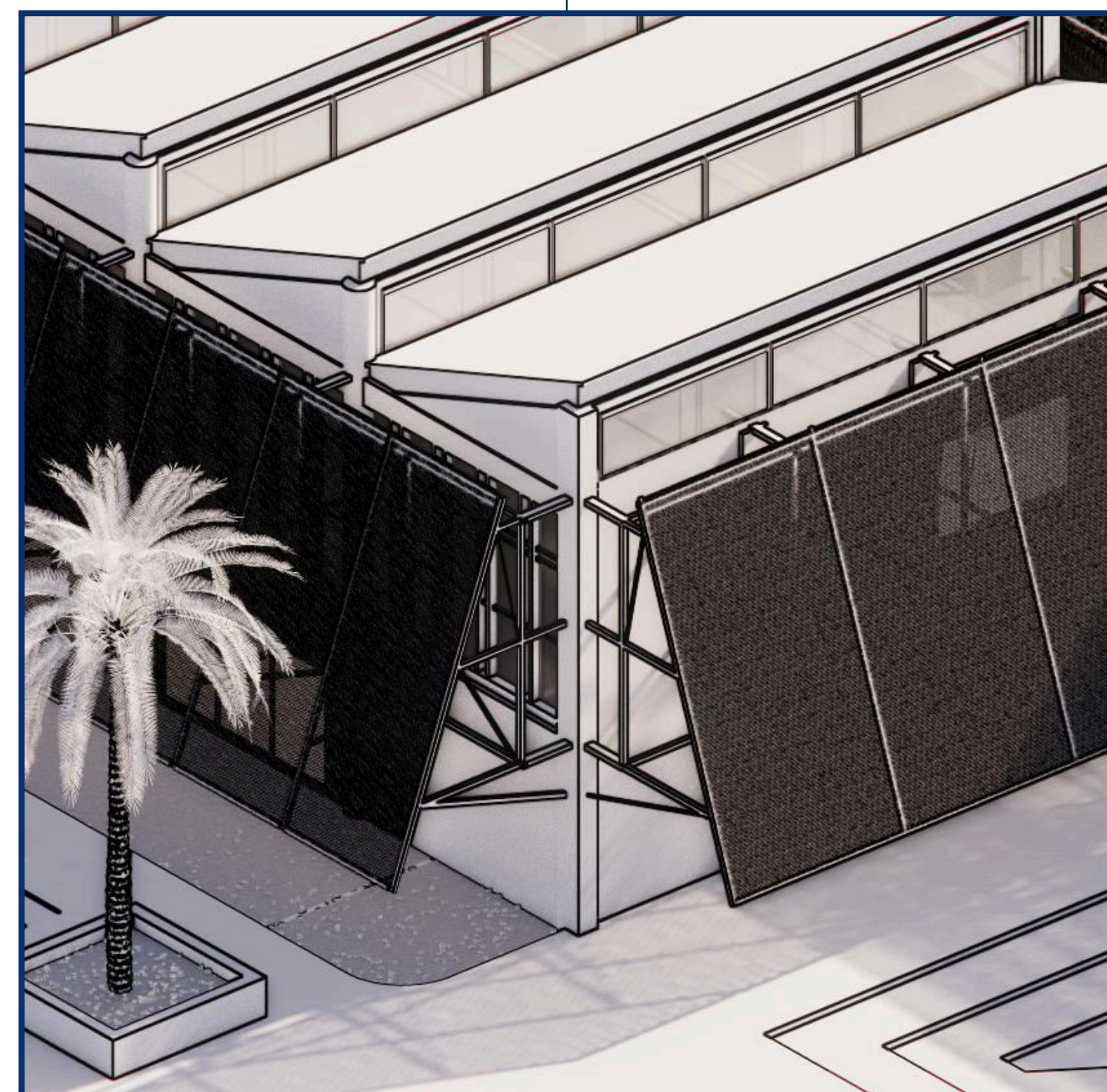


Figure 5.22
Secondary Skin Detail Connection Detail

Author (2026)



Building Architectural Detail

Pavilion Design

As the building (**see figure 5.22**) receives direct solar exposure from the northwest during the evening, this façade is equipped with a secondary skin system to mitigate solar gain and glare. The system utilizes a PVC-coated polyester tensile membrane with a PVDF finish and a thickness of 1.00 mm. The membrane is supported by a framing system connected to the primary column and beam structure, utilizing a combination of rectangular and circular hollow steel sections. This secondary skin is designed to reduce solar glare by approximately 40–50% during evening hours, contributing to improved energy efficiency and supporting the building's passive cooling strategy.

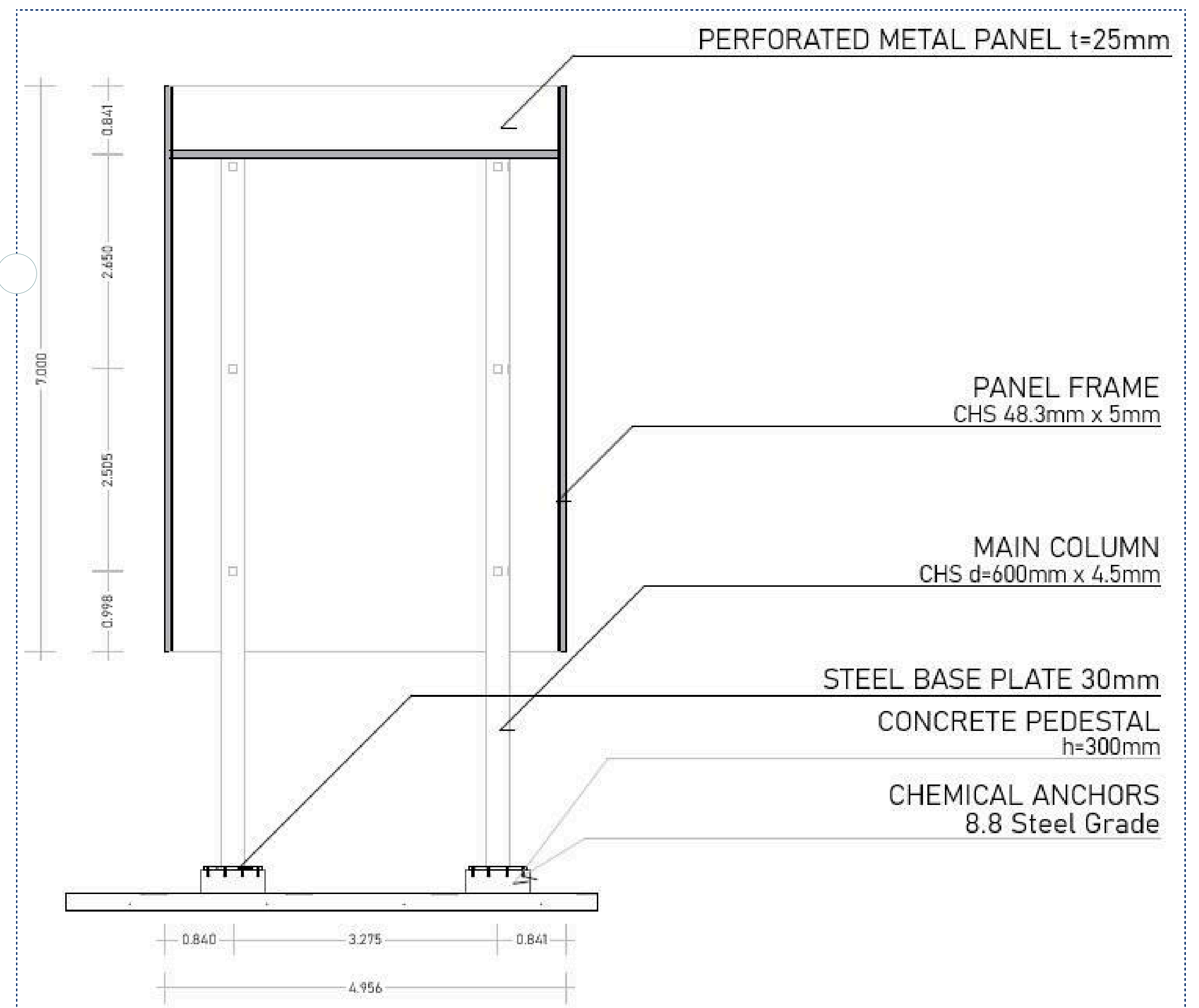
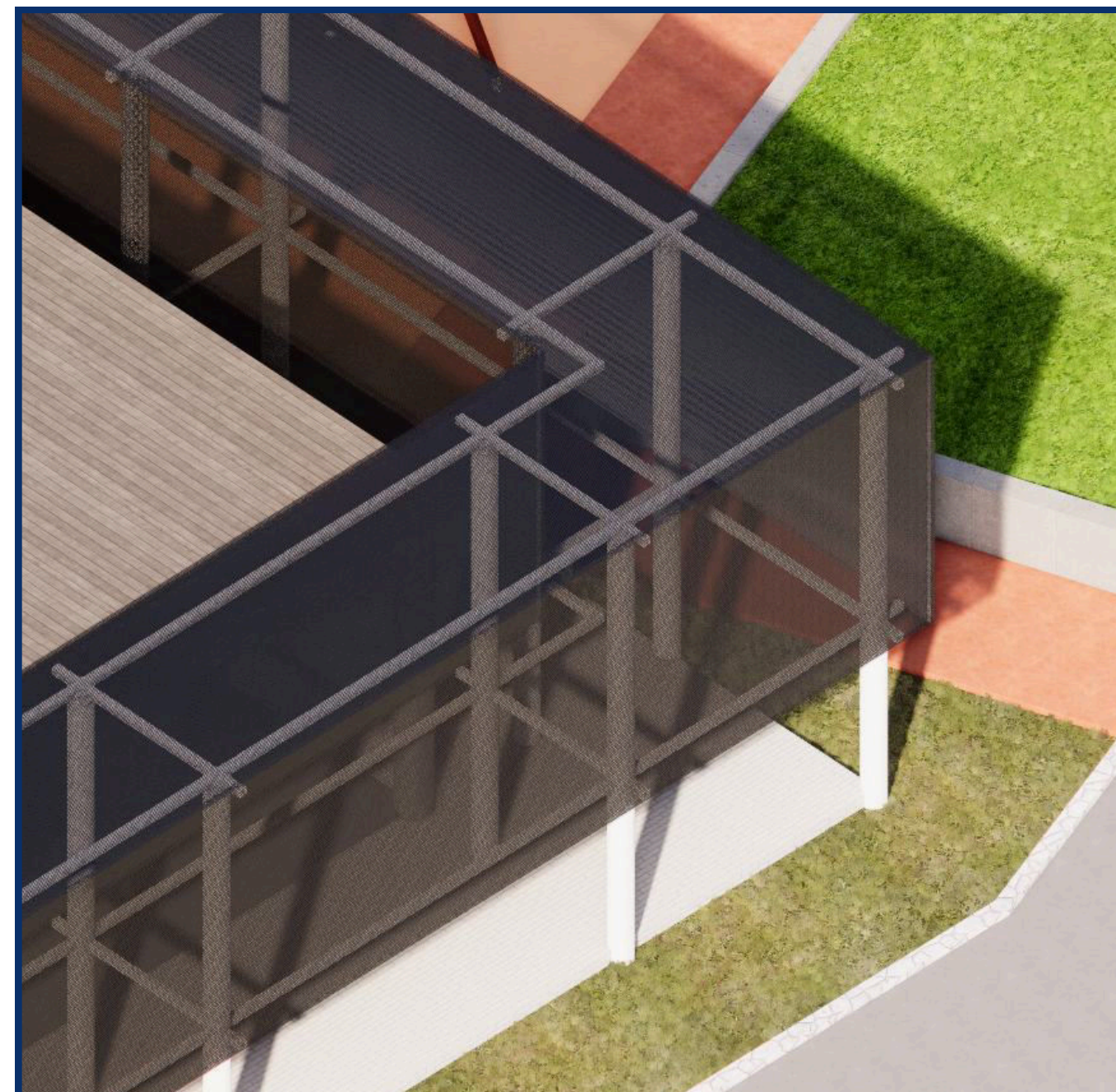


Figure 5.23
Pathway Detail

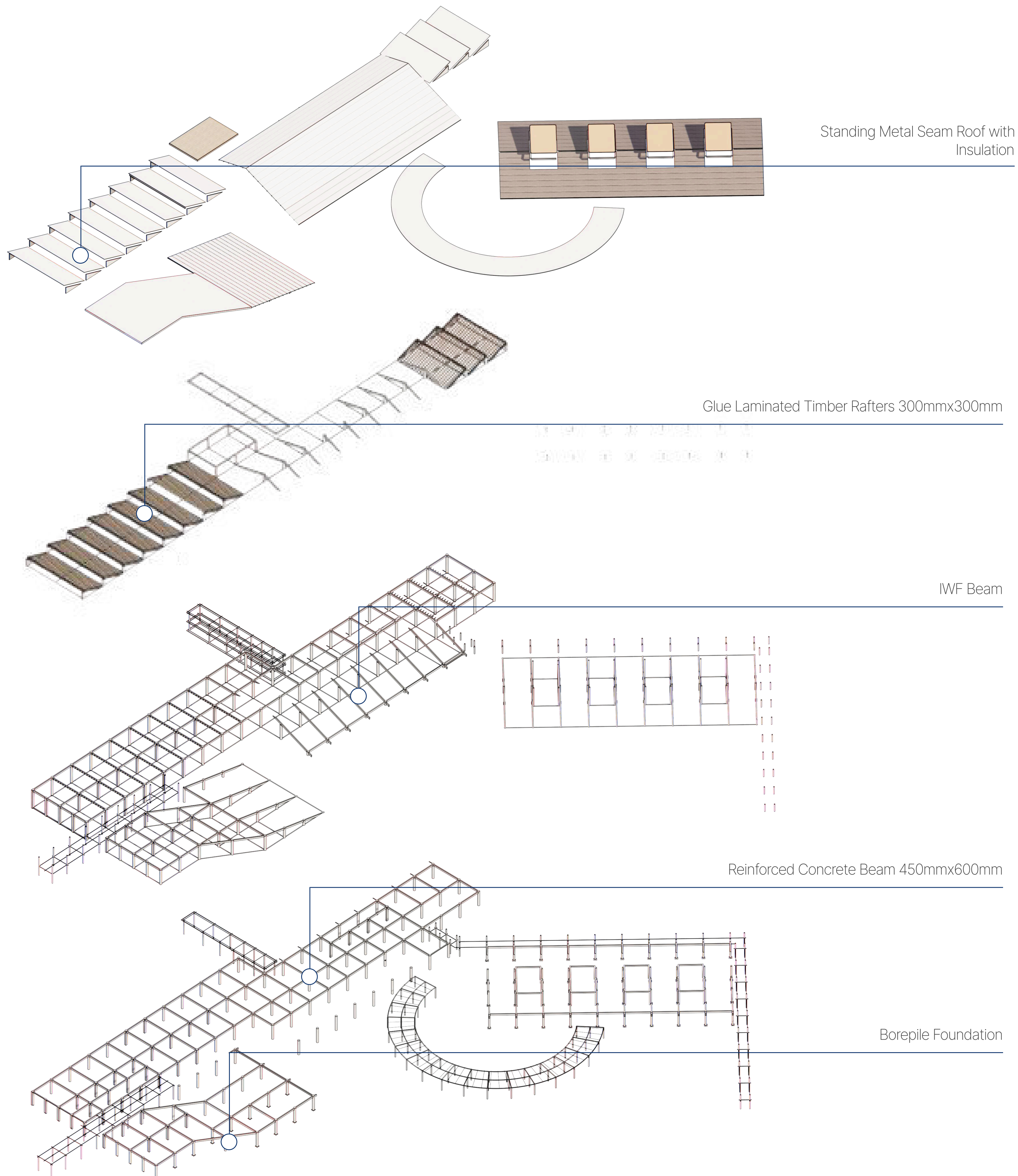
Author (2026)



Building Architectural Detail

Pathway Design

To enhance pedestrian access into and through the building, a pavilion-based pathway, **shown in figure 5.23**, shading system is provided along primary pedestrian routes. The structure reaches a maximum height of approximately 9,000 mm above ground level and is supported by steel hollow columns spaced at 3–4 m intervals along selected pathways. Each column is mounted on a 300 mm-thick concrete pedestal and connected via a 30 mm steel base plate anchored using Grade 8.8 chemical anchors. The pavilion roof and side panels utilize perforated metal panels with a thickness of 25 mm, providing shade while maintaining visual permeability and airflow.



The structural system seen in **figure 5.24** is organized as a layered assembly that clearly articulates load transfer from roof to foundation. At the uppermost level, a standing metal seam roof with insulation provides lightweight weather protection, supported by 300×300 mm glue-laminated timber rafters that span across the primary structural grid. These rafters transfer loads to the intermediate steel IWF beams, which act as secondary framing elements distributing forces toward the main reinforced concrete beams (450×600 mm).

The reinforced concrete beam network forms the primary structural skeleton, ensuring rigidity and stability across both linear and curved building geometries. Loads are ultimately transferred to a bored pile foundation system, anchoring the structure securely into the ground and accommodating soil conditions. This hybrid system—combining timber, steel, and reinforced concrete—balances structural efficiency, constructability, and material expression while supporting the spatial spans required for communal functions.

Figure 5.24
Building Structural System

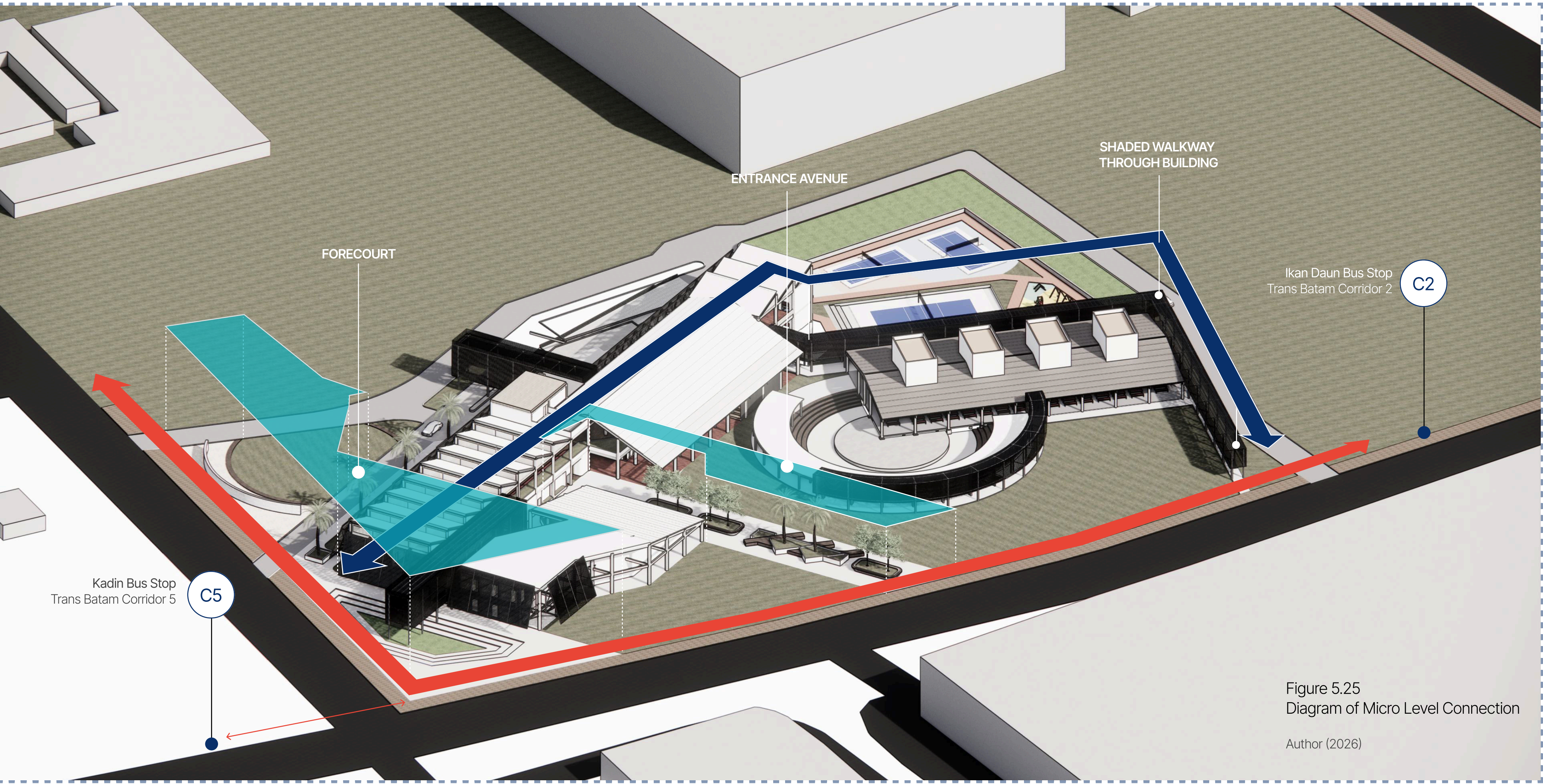
Author (2026)

Problem Specific Design Description

This section explores the architectural design outcomes as a response to the key design questions established at the outset of the study. It reflects on how the proposed spatial configurations, formal decisions, and structural strategies address the underlying theoretical framework and contextual conditions, thereby bridging conceptual inquiry and architectural realization.

Design Research Question 1

How can the design of a community center function as a shared civic space that is accessible to a broad population at the meso-urban scale?



Shown in **figure 5.25**, the design enables access for a broad population at the meso-urban scale by establishing multiple welcoming frontages that accommodate diverse modes of transportation. Two existing bus stops—Kadin Bus Stop serving Trans Batam Corridor 5 and Ikan Daun Bus Stop serving Corridor 2—are located within close proximity to the site. In response, a forecourt and entrance avenue are introduced to provide direct, legible access to the building's main circulation corridor. From this central spine, users can intuitively navigate toward their respective destinations within the complex. This spatial arrangement positions the building as an informal transport transfer node.

To address pedestrian-oriented demographics, the design incorporates a shaded public walkway that passes through the building complex. Beyond functioning as weather protection, this pathway acts as an urban connector that links two public transport points while exposing passersby to ongoing activities within the building. In doing so, the project supports both micro- and meso-scale urban movement, reinforcing the building's role as an accessible, socially active civic interface.

How can the design respond to and integrate with its surrounding urban fabric at the micro-urban scale?



Figure 5.26
Silhouette Conforming Strategy
Author (2026)

Surrounding Conforming Building Silhouette

The design aims to establish the community city as a distinct civic presence while remaining visually and spatially integrated with its urban surroundings. To achieve this balance, the architectural form deliberately draws a significant portion of its formal language from the immediate context (**see figure 5.26**), which is predominantly characterized by orthogonal geometries, rigid massing, and materials associated with contemporary construction. Surrounding developments—such as One Batam Mall, the Mercure Hotel, and the ubiquitous ruko (shophouse) typology commonly found throughout Batam—share these defining traits of square proportions, sharp edges, and modern finishes. By reinterpreting these contextual characteristics rather than replicating them directly, the design achieves a familiar yet differentiated expression, allowing the community city to blend into the existing urban fabric while asserting its own architectural identity.

Surrounding Buildings' Facade



One Batam Mall
50m away from site
Source: Author, 2025

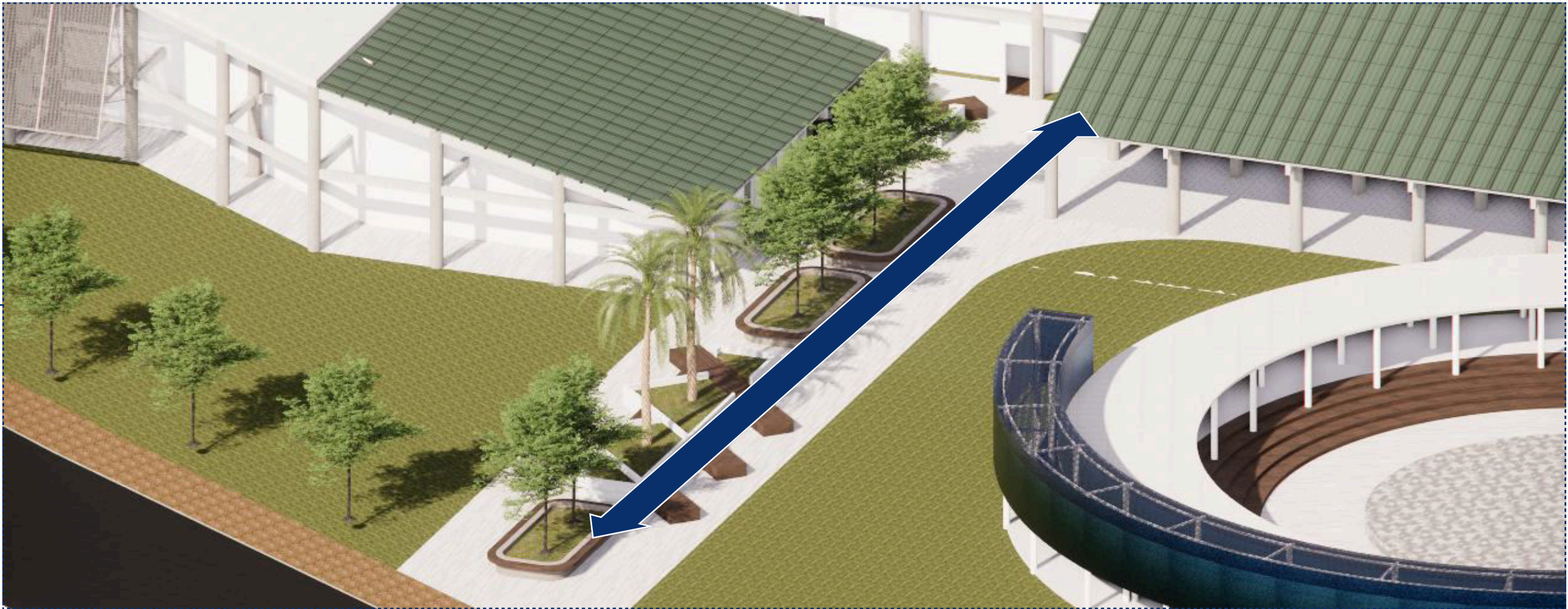
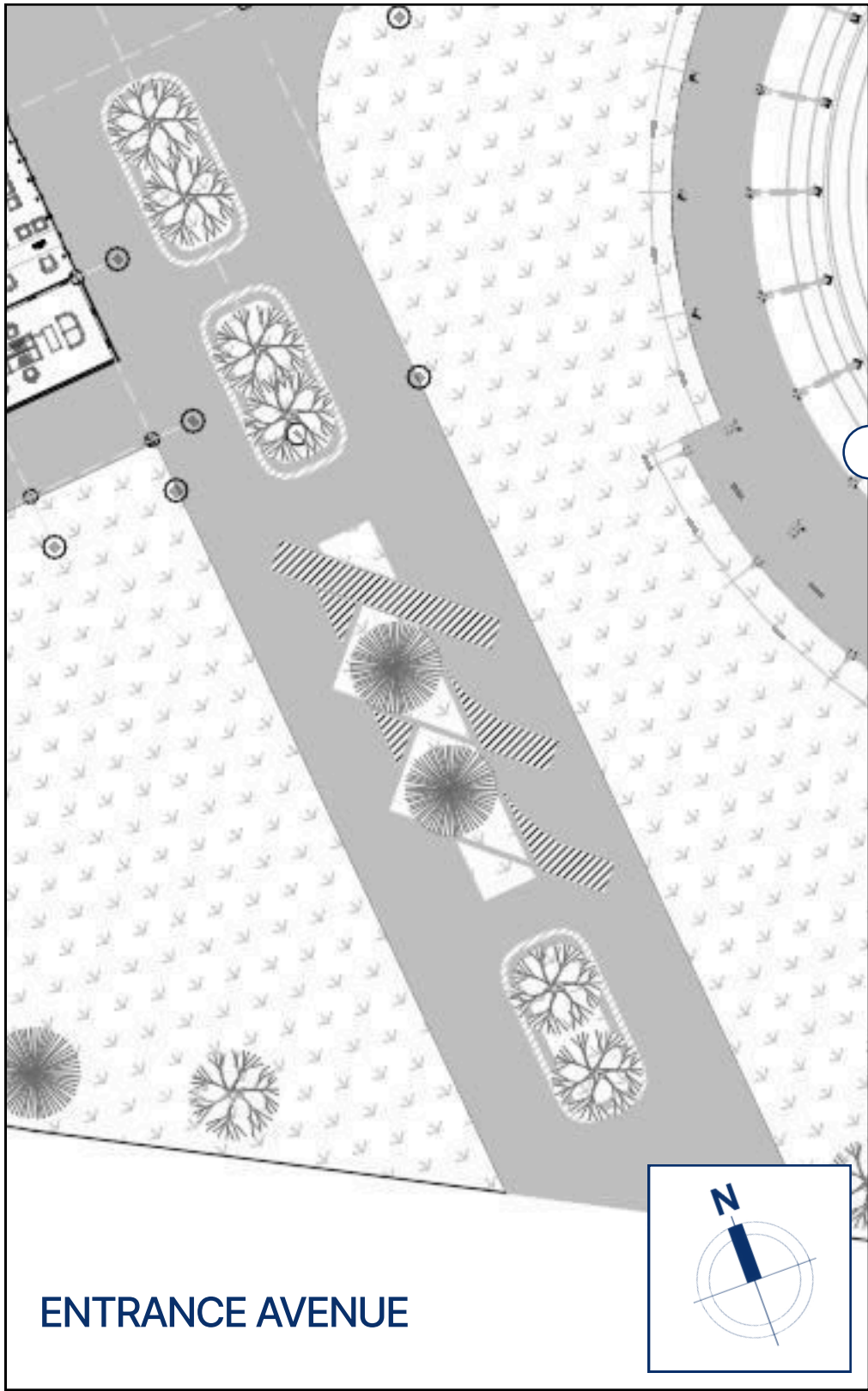


AMP Building
50m away from site
Source: Author, 2025



Mitra 10 Construction Store
100m away from site
Source: Author, 2025

How can the design respond to and integrate with its surrounding urban fabric at the micro-urban scale?



Providing Street Furniture for Pedestrians

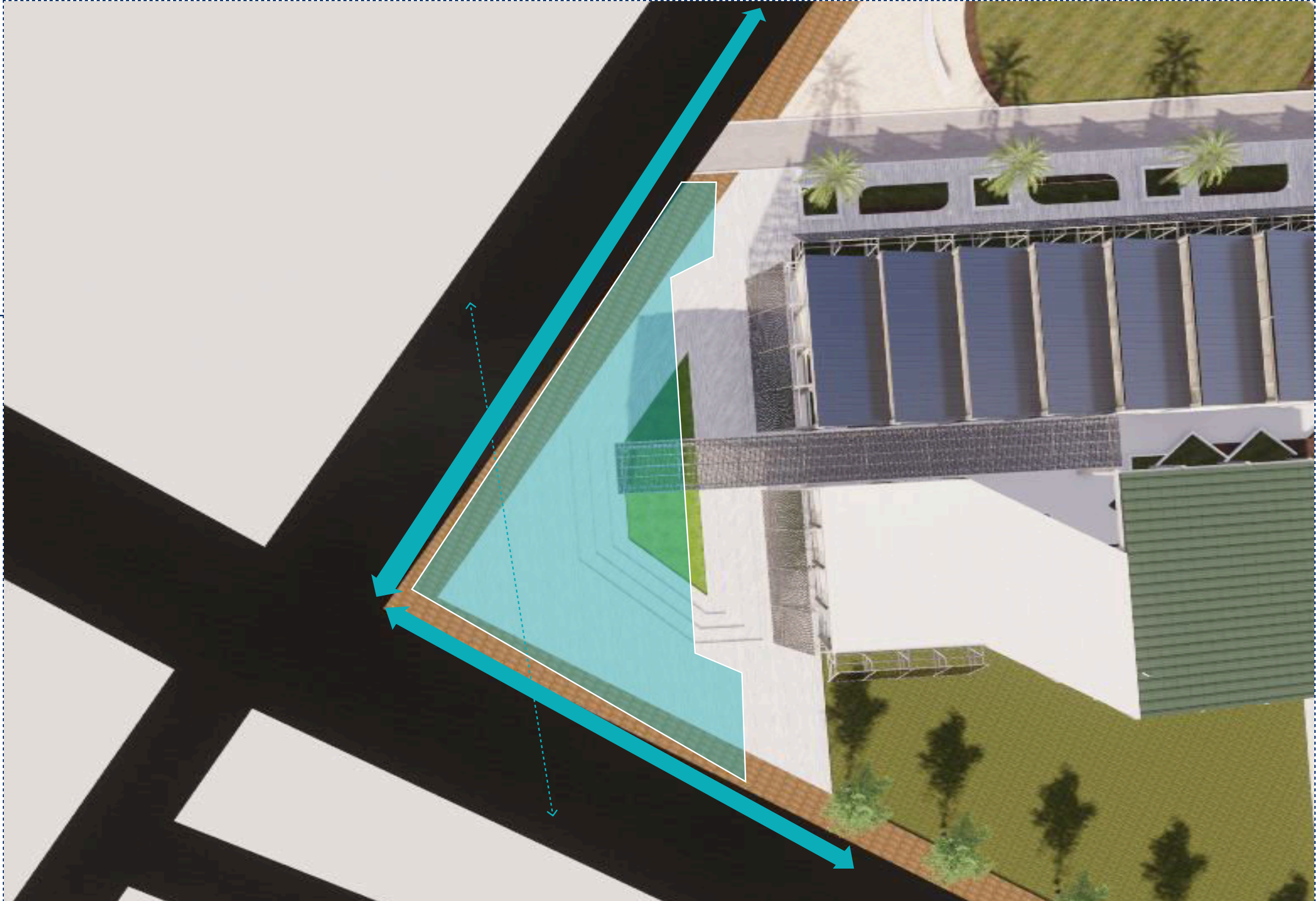
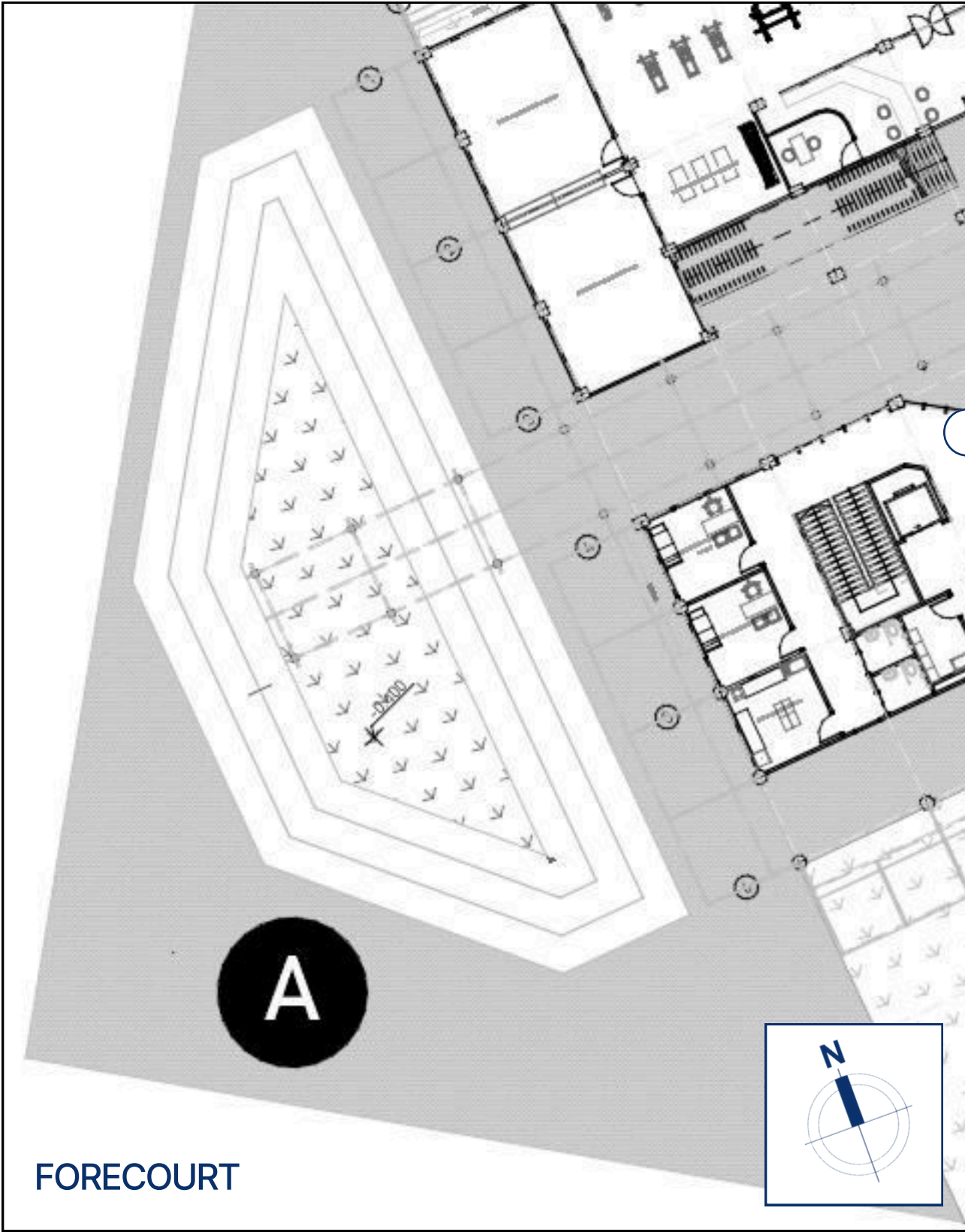
At the micro-urban scale, the design responds to moderate to high pedestrian activity by prioritizing walkability and spatial legibility seen in **fig 5.27**. An entrance avenue is articulated with integrated street furniture to guide users toward key programmatic nodes while providing seating and shaded resting areas. This pedestrian axis directly connects to a convergence point linking multiple community center facilities, reinforcing accessibility, orientation, and user comfort.



Figure 5.27
Street Furniture in Entrance Avenue

Author (2026)

How can the design respond to and integrate with its surrounding urban fabric at the micro-urban scale?



EXISTING STREET VENDOR ACTIVITIES 0-250m OF SITE RADIUS

Providing Street Furniture for Pedestrians

Beyond its role as a space for sitting and social interaction, the sunken plaza at the forecourt is strategically located at a key junction to enhance building accessibility from multiple approach points. The plaza also accommodates existing informal street vendor activities that typically emerge during the late afternoon to evening (see figure 5.28). As these vendors often obstruct pedestrian sidewalks, the design provides a generous, designated area for vending, while the sunken configuration offers integrated seating for visitors to dine or linger, maintaining pedestrian flow and spatial order.

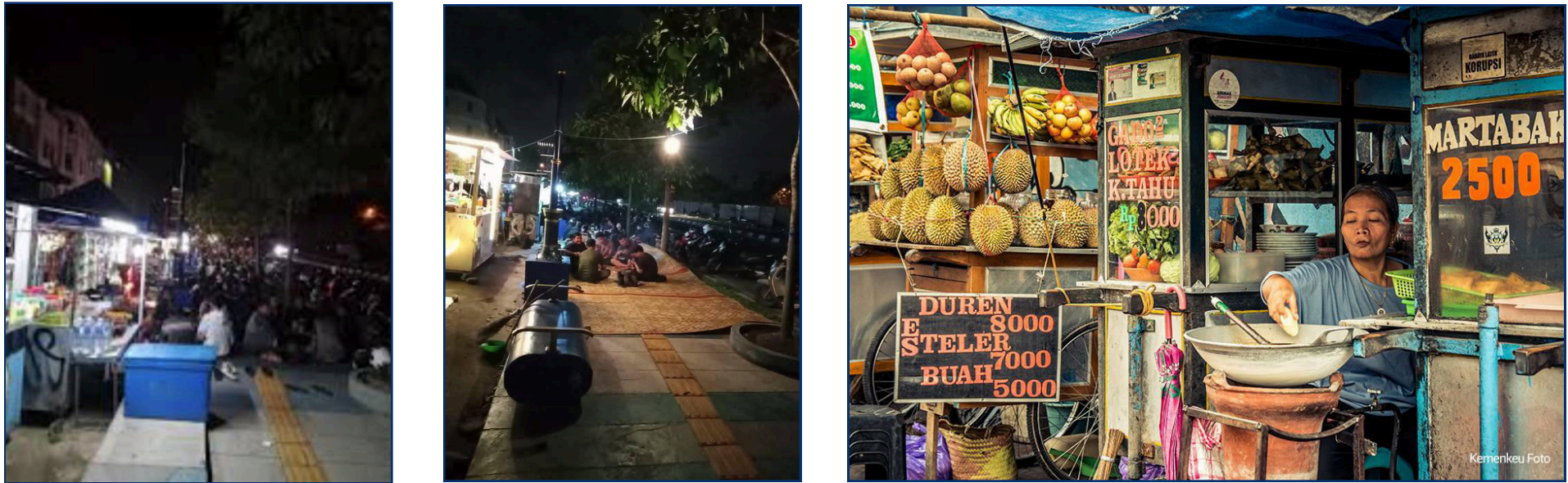


Figure 5.28
Diagram of forecourt's utility and connection

Author (2026)

Design Research Question 3

How can a community center be designed to accommodate routine, everyday activities that promote sustained daily occupancy and long-term community engagement?

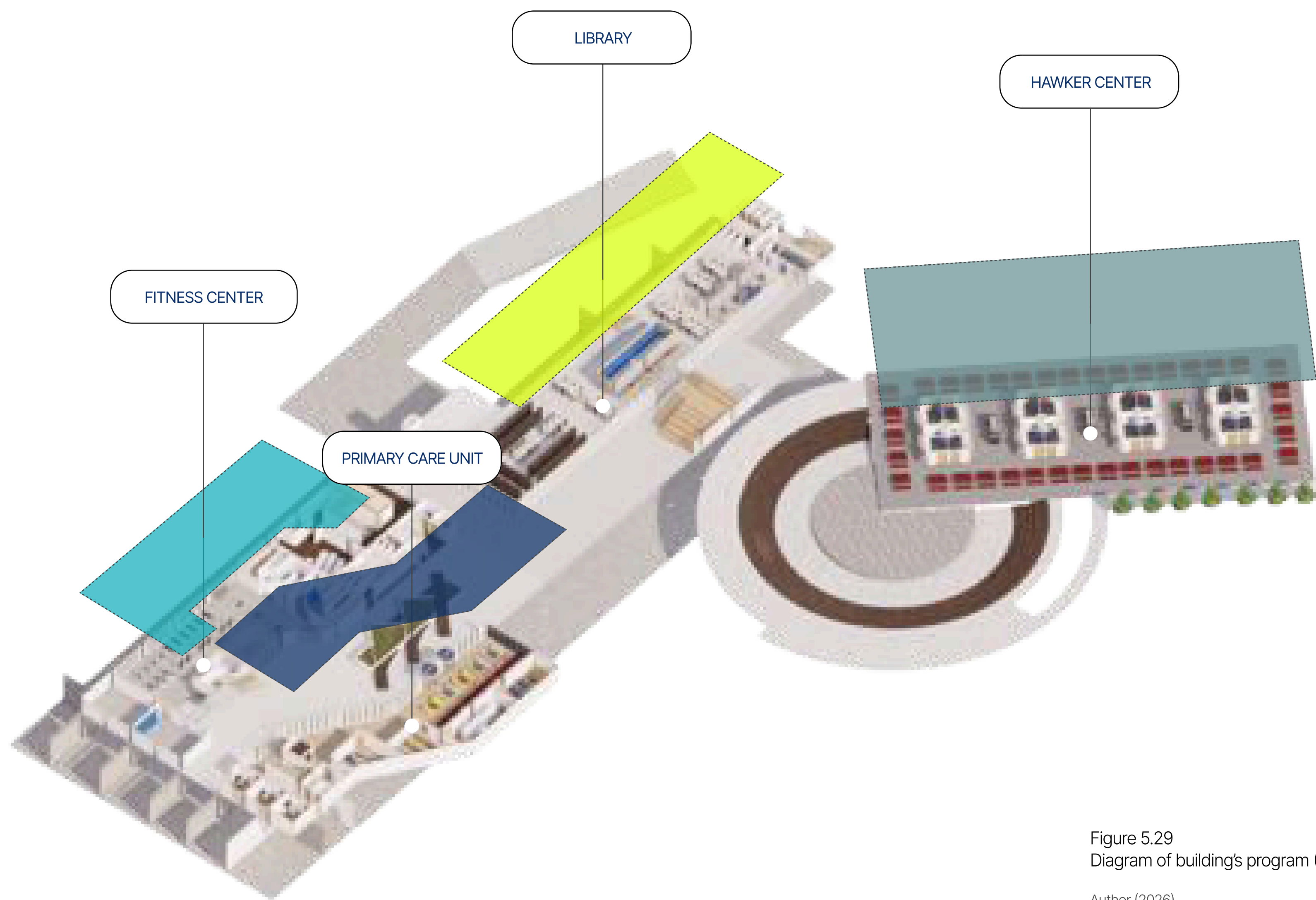


Figure 5.29
Diagram of building's program (GF)
Author (2026)

Incorporating Multiple Routine-Based Program

The community center integrates multiple routine-based programs, including a fitness center equipped with shower and changing facilities, a primary care-level clinic for general health and wellbeing, a community-scale library, an art gallery, and a hawker center (see figure 5.29). Programs such as the fitness center and primary care unit operate on a frequent or scheduled visitation model, supporting stable and consistent building occupancy. The library functions on a moderate to frequent visitation pattern; the absence of comparable facilities within the meso-urban radius positions it as a key attractor, further reinforced by direct integration with public transportation networks. The hawker center serves both as an alternative dining option for workers in the surrounding area and as a daily-use facility for regular building users. The art gallery adopts a similar role to the library, operating as a community-oriented cultural anchor with moderate visitation frequency.

Rather than being spatially segregated, these programs are organized along a linear axis forming the main corridor, or social spine, of the building. This configuration enhances programmatic visibility, accessibility, and interaction, reinforcing the role of the community center as an integrated and legible civic environment.

How can a community center be designed to accommodate routine, everyday activities that promote sustained daily occupancy and long-term community engagement?

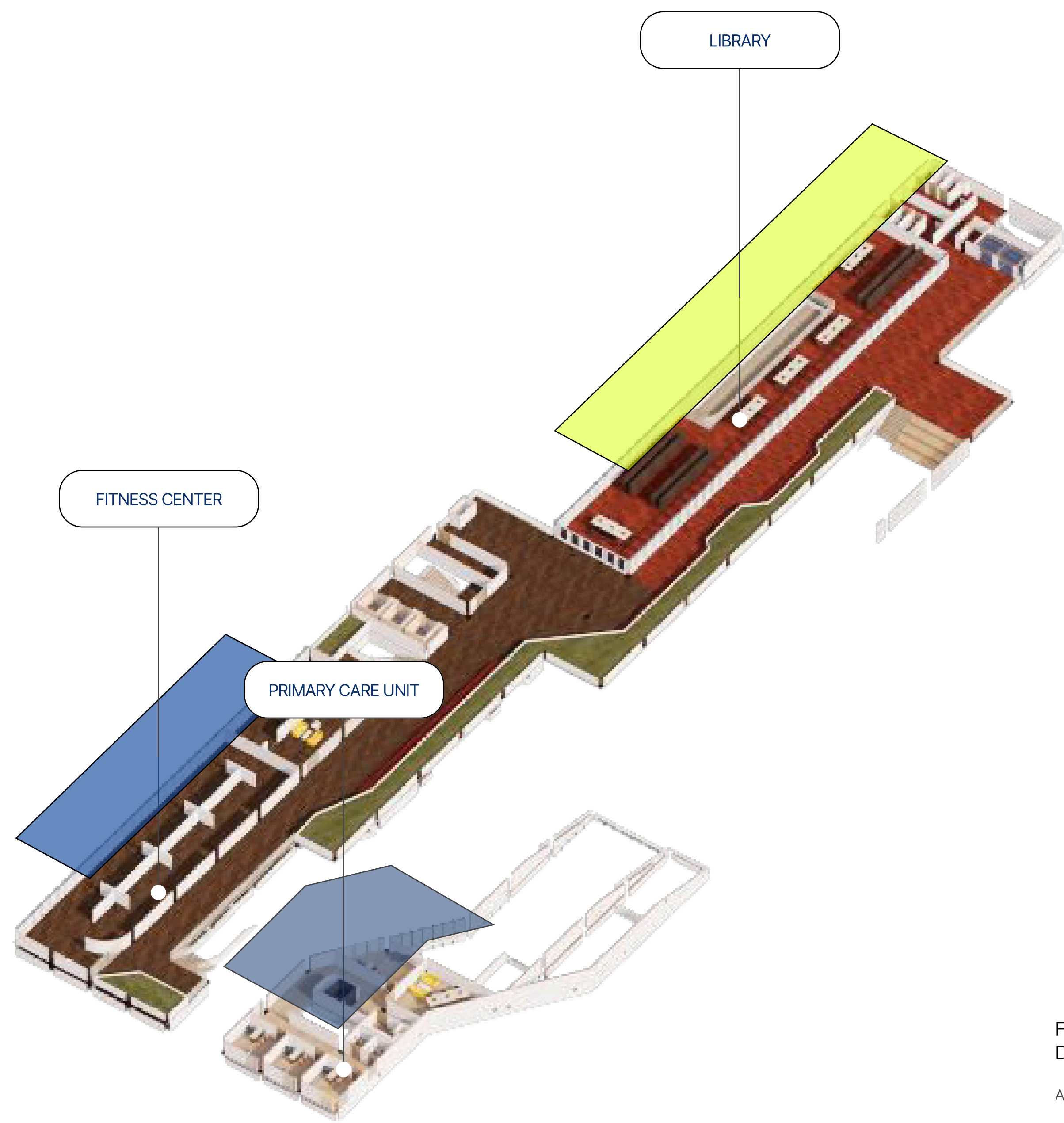


Figure 5.30
Diagram of building's program (1F)
Author (2026)

The community center combines routine-oriented programs—including a fitness center with changing facilities, a primary care clinic, a community library, an art gallery, and a hawker center (see Figure 5.29)—to sustain consistent daily occupancy. High-frequency uses such as the fitness center and clinic ensure steady visitation, while the library and gallery act as cultural anchors that attract moderate but recurring users, especially given their accessibility via public transport. The hawker center supports both surrounding workers and regular building users, reinforcing everyday activity. These programs are arranged along a linear social spine, maximizing visibility, accessibility, and interaction within a cohesive civic environment.

Design Research Question 3

How can a community center be designed to accommodate routine, everyday activities that promote sustained daily occupancy and long-term community engagement?



Communtiy Library

Peak Hours Capacity: 100
Off Peak Hours Capacity: 50



Primary Care Unit

Peak Hours Capacity: 100
Off Peak Hours Capacity: 20

Limited to Outpatient Only



Art Gallery

Peak Hours Capacity: 50
Off Peak Hours Capacity: 25



Hawker Center

Peak Hours Capacity: 152 seatings
Off Peak Hours Capacity: 45 visitors
Leasable Stalls: 16 stalls



Fitness Center

Peak Hours Capacity:
Off Peak Hours Capacity:

Figure 5.31
Capacity of building's provided facilities

Author (2026)

Figure 5.31 illustrates how each facility is dimensioned according to its expected intensity of use, ensuring balanced occupancy throughout the day. The primary care unit and community library accommodate up to 100 users during peak hours, establishing strong daytime anchors, while the hawker center provides the highest seating capacity (152 seats) to support both concentrated lunch-hour surges and extended daily use. In contrast, the art gallery operates at a smaller, more controlled capacity, fostering slower, contemplative engagement. This calibrated distribution of spatial capacity allows the community center to sustain continuous activity across different time periods while preventing overcrowding or underutilization of individual programs.

How can the spatial design enable experiences and programs that foster social interaction and participation among users through social condenser design approach?

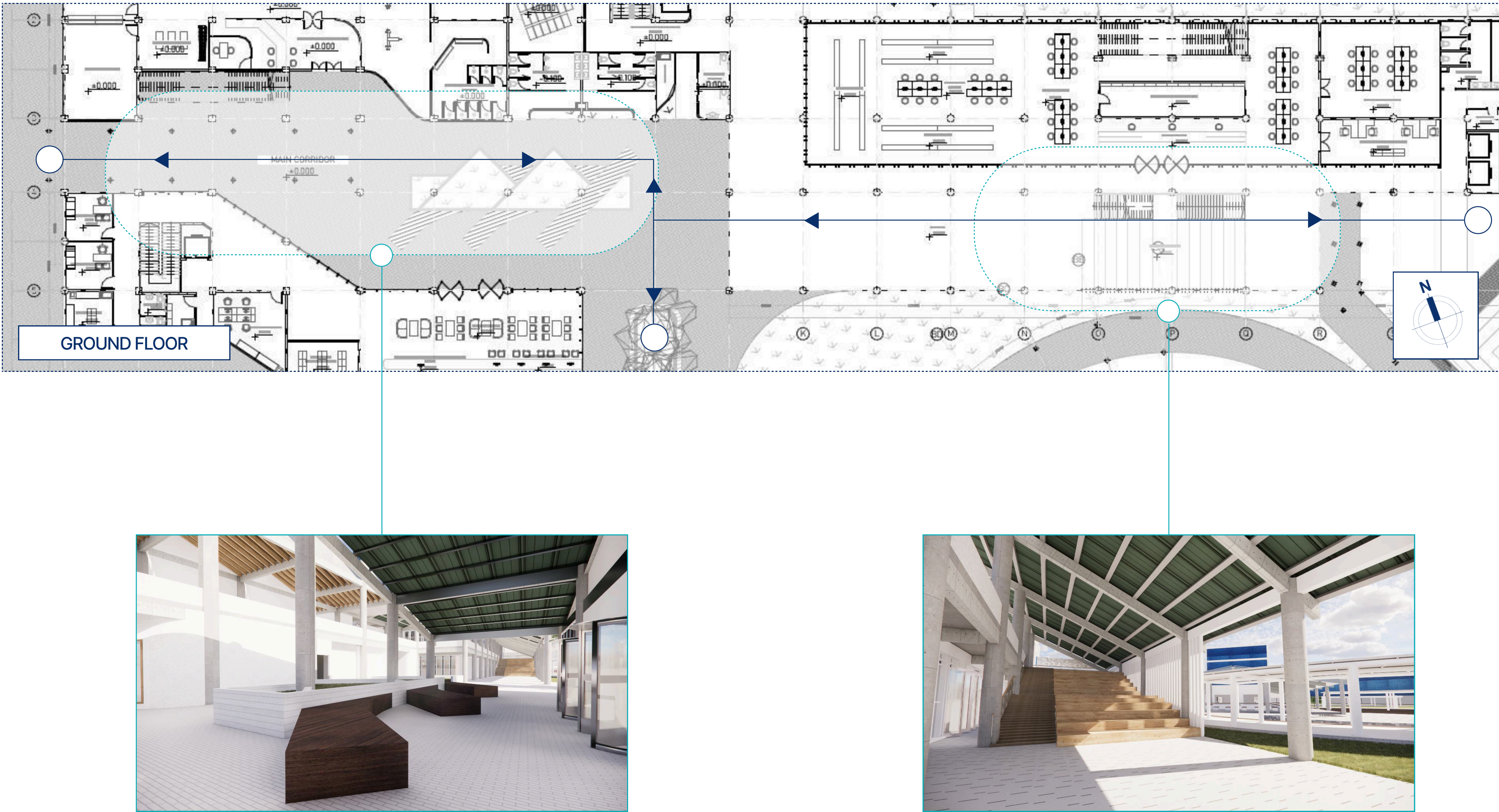


Figure 5.32
Diagram of Main Corridor as Social Spine
Author (2026)

As programs are distributed along a linear axis across the site, the main corridor is designed not solely as a horizontal circulation element but as a convergence space capable of accommodating temporary activities and events shown on **figure 5.32**. This is achieved by expanding the corridor width to approximately 6 meters—three times the minimum requirement—allowing for flexible occupation beyond movement. The corridor is further articulated as a semi-outdoor space through the provision of shading and integrated furniture, including seating elements. Primary staircases connecting to the first floor are similarly designed to function as informal seating and gathering areas, reinforcing the corridor's role as an active social spine rather than a purely transitional space.

How can the spatial design enable experiences and programs that foster social interaction and participation among users through social condenser design approach?

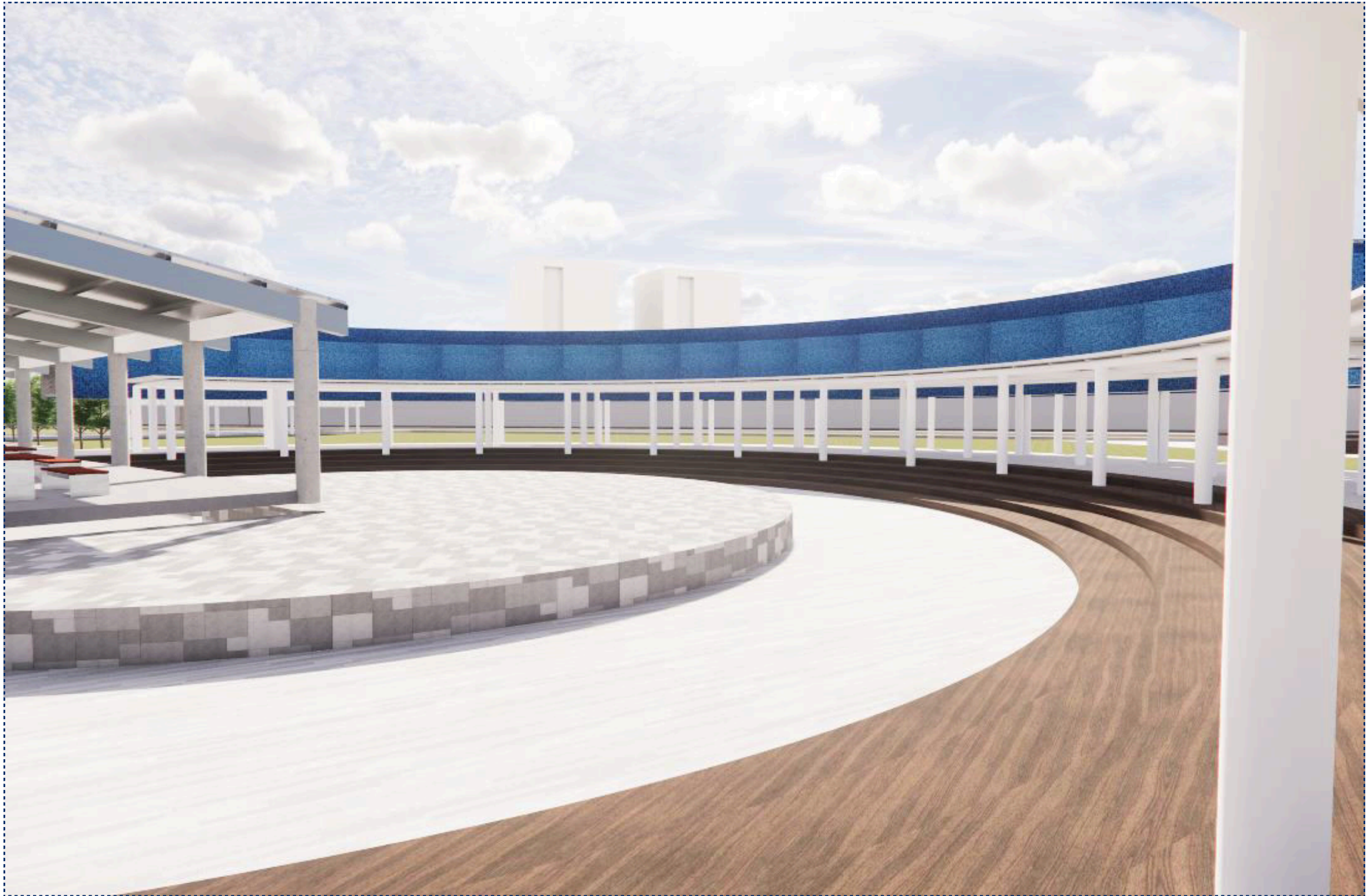
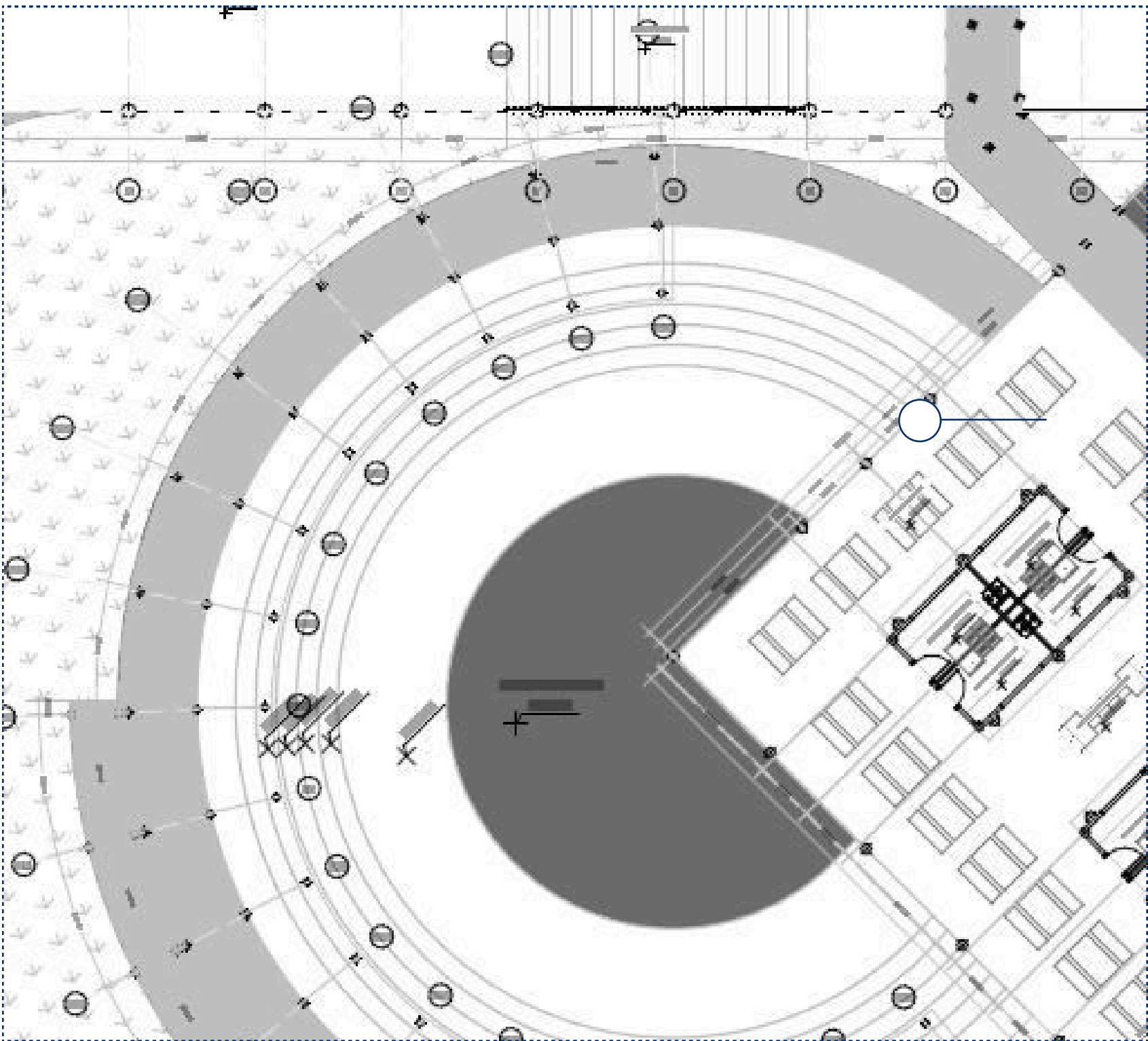


Figure 5.33
Diagram of ampitheater's adjacency with hawker center
Author (2026)

Adjacency plays a critical role in shaping spatial experience and fostering social interaction and participation, particularly within the framework of social condensation. **Figure 5.33** illustrates how positioning the amphitheater adjacent to the hawker center creates a spatial relationship that encourages visual connectivity, cross-activity engagement, and shared occupancy. By placing these two programmatic elements in close proximity, users from different activity groups—spectators and diners—are able to observe, experience, and informally participate in one another's activities. This arrangement not only enhances vibrancy and passive engagement but also reinforces the site as a socially dynamic environment where interaction occurs organically through overlap and mutual visibility.

6

Reflective
Review

Jury's Note Responses

Question from Jury 1
Prof. Dr.-Ing. Ir. Ar. Ilya Fadjar Maharka, MA., IAI.

"Need to "add" schematic on how the mezo level being designed (such as spatial connections fro other blocs etc)

Response

This diagram **figure 6.1** illustrates the building's relationship to its surrounding urban fabric at the meso scale, defined within a 700-meter radius—approximately a 10-minute walking catchment. The radius establishes the project's primary sphere of influence and identifies the immediate service area of the facility.

Key neighborhood nodes and activity centers are highlighted to demonstrate potential user groups and pedestrian inflows. By mapping these surrounding residential, commercial, and civic areas, the diagram reinforces the building's role as a connective urban node strategically positioned to serve and attract users within its walkable context.

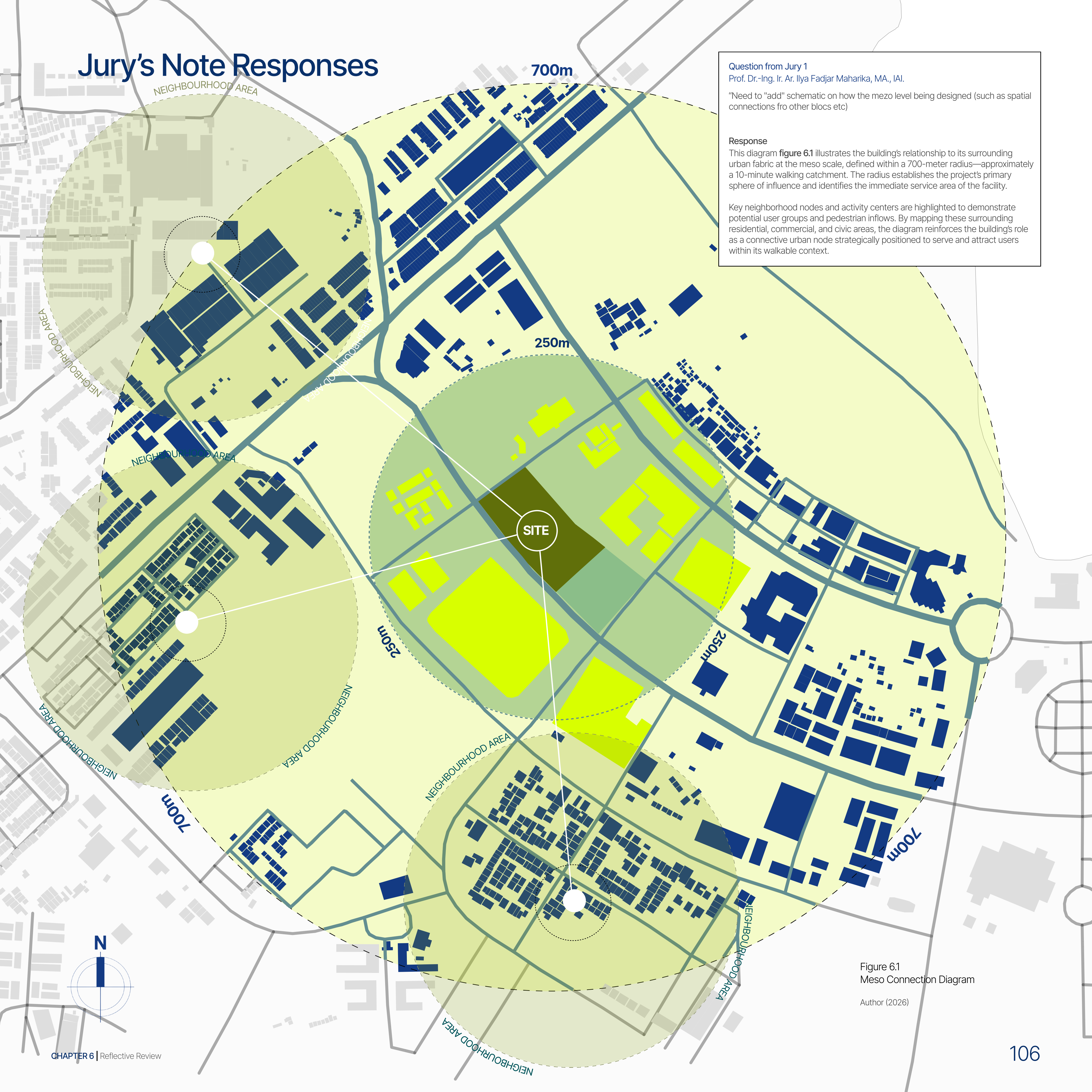
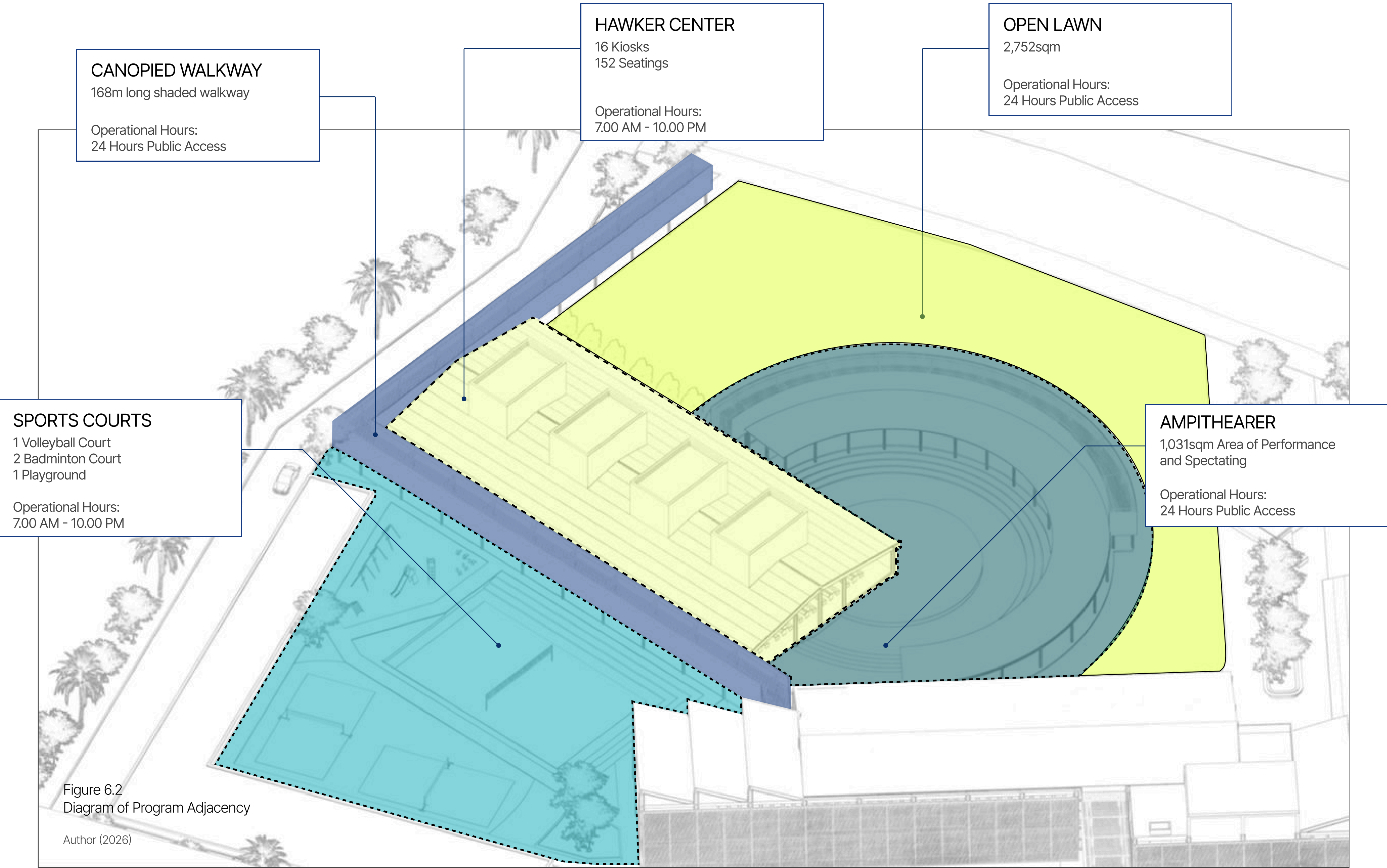


Figure 6.1
Meso Connection Diagram
Author (2026)

Question from Jury 1
Prof. Dr.-Ing. Ir. Ar. Ilya Fadjar Maharika, MA., IAI.

"Need to be more explicit on how the social condenser is being applied, such as 24 hours "clash of activities - cross social groups"



With the social spine and canopied walkway remaining publicly accessible for 24 hours seen in **figure 6.2**, the building maintains continuous urban permeability. The spatial configuration prioritizes program adjacency and close interrelationships, ensuring that circulation paths overlap with active program zones rather than bypassing them.

This arrangement enhances visual permeability across spaces and increases the likelihood of incidental interaction between users. The diagram illustrates the varying operational hours of each program and demonstrates how overlapping time frames create opportunities for temporal intersection, reinforcing the building's function as an active social condenser throughout the day and into the evening.



CORRIDOR A

BASEMENT PARKING

98 Car Parking Slots
4 Disabled Car Parking Slots
63 Motorbike Parking Slots

Operational Hours:
24 Hours Public Access - Paid

Jln Engku Putri Utara
230 meters long

Street Food Vendors
Active Hours: 18.00 PM - Past Midnight

CORRIDOR B

Question from Jury 1

Prof. Dr.-Ing. Ir. Ar. Ilya Fadjar Maharika, MA., IAI.

"How is the utilization and operational scheme of the parking lot, does it run 24 hours?"

Response

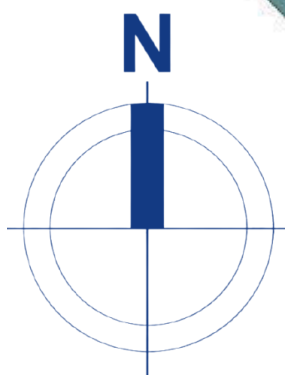
Yes, the basement parking facility operates on a 24-hour basis as part of a dual strategy: to generate additional revenue and to strengthen integration with the surrounding urban context.

Given the presence of nearby commercial and evening-oriented activities that remain active until late at night, the parking facility is positioned to serve not only community center users but also external visitors within the area. The diagram (**figure 6.3**) illustrates these surrounding nighttime activity nodes, identifying them as potential user generators for the parking facility.

By extending operational hours beyond those of the primary programs, the basement parking enhances economic viability while reinforcing the building's role as an embedded urban infrastructure rather than a single-use civic object.

Figure 6.3
Diagram of Parking Operational Scheme and Utility

Author (2026)



Comment from Jury 2
Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.
“Access door to the generator room is too small”

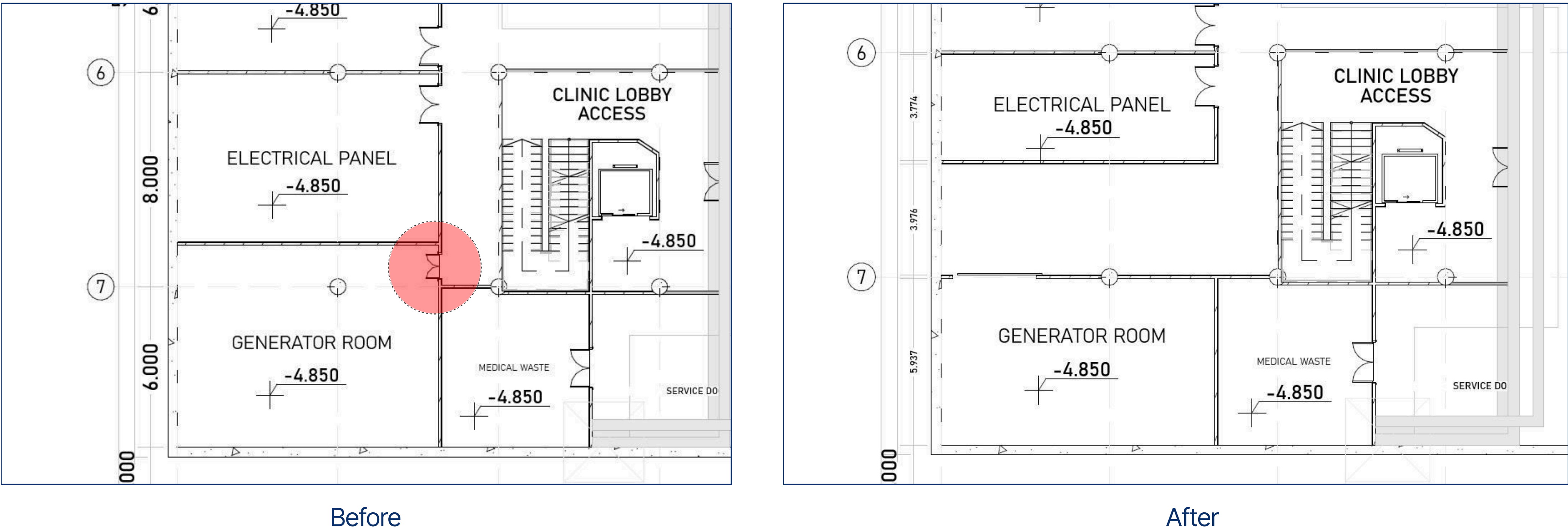
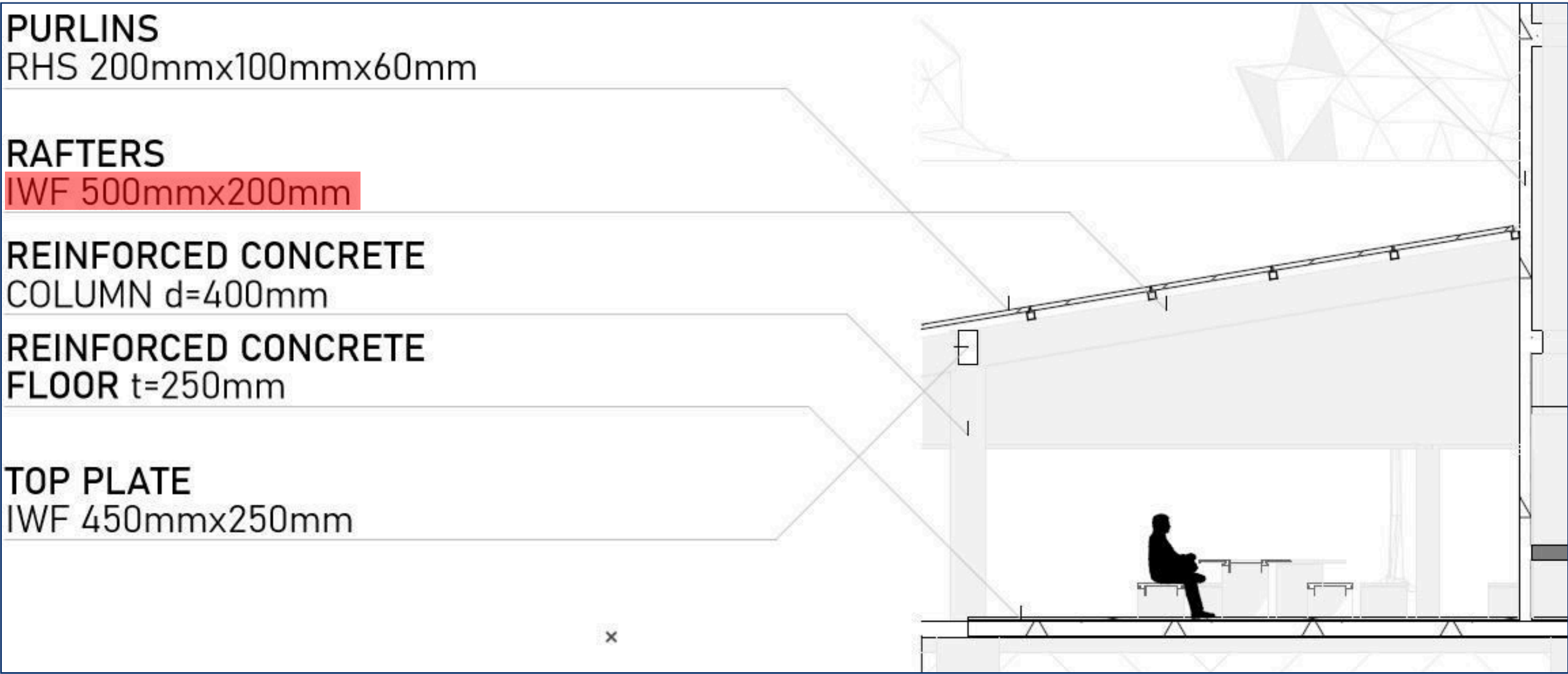


Figure 6.4
Before and after comparison of generator room's door and corridor
Author (2026)

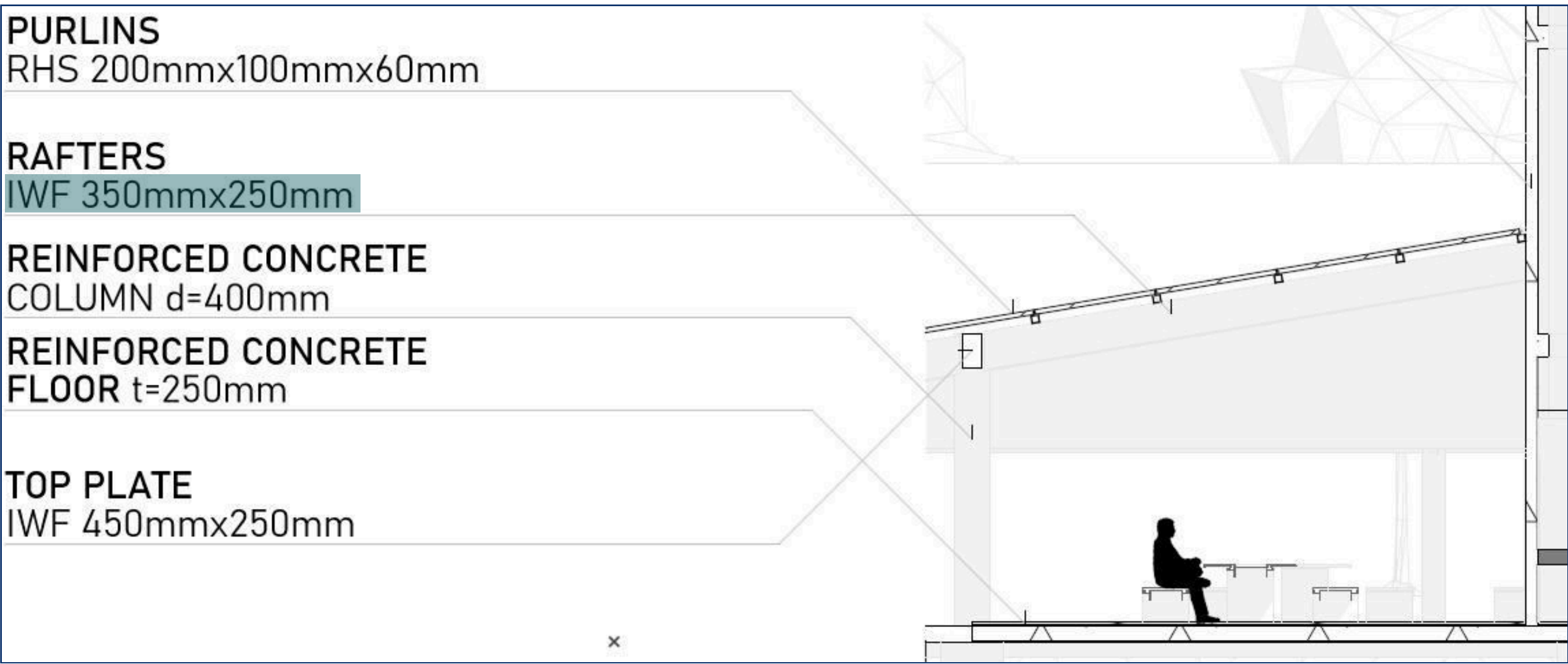
Previously, the generator room access door was designed at 2000 mm wide, which was insufficient to accommodate the entry and maneuvering requirements of the generator unit.

The design **seen in figure 6.4** has been revised by increasing the access width to a 3000 mm sliding door, allowing adequate clearance for equipment delivery and installation. Additionally, a 3976 mm wide access corridor has been introduced to ensure smooth movement and turning radius for the generator during placement and maintenance operations. This adjustment improves functional feasibility and complies with equipment access requirements including the preferred specification of a 3,32 × 1,86 × 2,36m (100KVA) generator.

Comment from Jury 2
Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.
“Dimension for the rafter is too big”



Before



After

Figure 6.5
Before and after comparison of rafter's dimension in Section C
Author (2026)

Previously, the rafters shown in Section C for the hawkers center structure were oversized, resulting in structural inefficiency and unnecessary material use. The original IWF 500 × 200 mm section has therefore been optimized to an IWF 350 × 250 mm section.

This revision seen in **figure 6.5** reduces structural weight and improves material efficiency while maintaining adequate strength and safety performance in accordance with the required span and loading conditions.

Suggestion from Supervisor
Ir. Wiryono Raharjo, M.Arch., Ph.D.
“Need to show the utilization scheme of the open lawn”



Figure 6.6
Diagram of open lawn's utility
Author (2026)

UTILIZATION OF OPEN LAWN

The open lawn (see figure 6.6) is designated to accommodate medium- to large-scale events through the use of semi-fixed or temporary architectural structures. When not in event use, the lawn shall function as an informal public open space, supporting activities such as picnics, sports, games, and other recreational uses. This dual use activates the building's largest frontage, reinforcing movement, visibility, and public life along the major street and pedestrian pathway.

TYPES OF EVENTS/ACTIVITIES ACCOMODATED BY THE LAWN:

- Temporary bazaars and pop-up markets
- Cultural festivals and community celebrations
- Religious gatherings and communal prayers (e.g. Shalat led / Eid prayers)
- Art fairs, exhibitions, and temporary installations
- Outdoor performances (music, dance, theatre)
- Public screenings and movie nights
- Wellness events (mass yoga, fitness classes, meditation sessions)
- Educational events, public lectures, and workshops
- Seasonal events and city-wide programs

A

This illustration seen in figure 6.7 shows the lawn being used for a bazaar or festival. The open space can accommodate a large crowd and supports the installation of tents or semi-permanent structures. The lawn is designed to remain flexible, allowing it to shift from everyday use to large public events when needed.

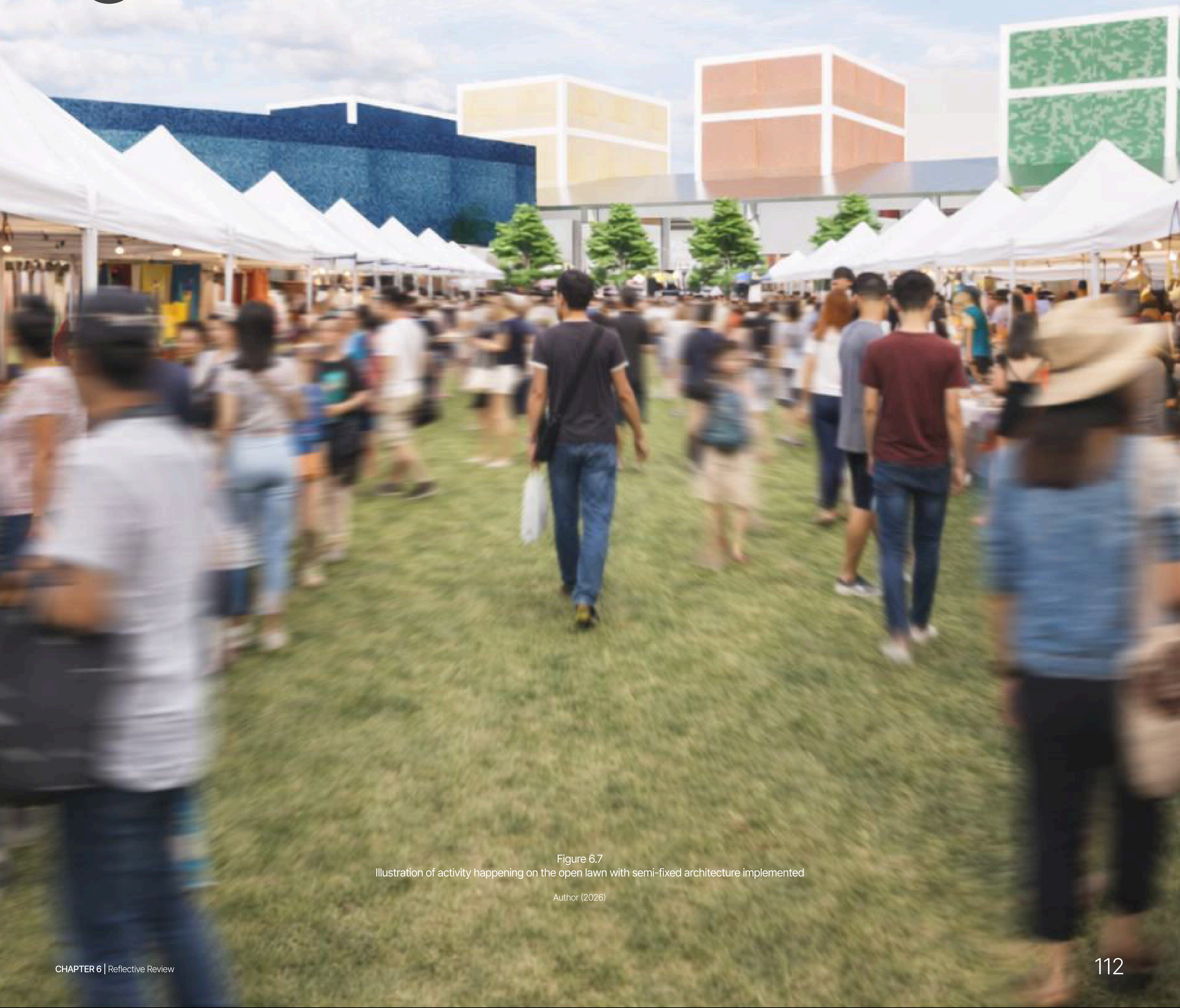


Figure 6.7
Illustration of activity happening on the open lawn with semi-fixed architecture implemented

Author (2026)

Table of Responses

Design Brief

Juror 1: Prof. Dr.-Ing. Ir. Ar. Ilya Fadjar Maharika, MA., IAI.

No	Notes from Juror	Adequate Response	Revised Page
1	The parametricism has not yet really been developed. Need to explore the role of this computational such as calculating "the green" in the mezo level and then implemented in micro level	Parametric strategies are alternatively applied through the mapping and analysis of the meso-urban context, with the surrounding neighbourhood serving as the primary subject of study. This shift aligns with the transformation of the building typology into a community center, ensuring that the design responds directly to its broader urban and social environment.	106
2	Force-based needs to be reviewed, as I could not see any "force" that dominates the area. Need to consider a pattern-based approach and see the role of the site, maybe as "green space" within the relatively dense area	The design approach has been revised to adopt the social condenser framework, as it provides a more comprehensive and effective response to the identified background issues and design problems. Consequently, the previously considered force-based approach has been discontinued, as it did not sufficiently address the project's social and urban objectives.	7

Table 6.1
Design brief response table to juror 1
Author (2026)

Juror 2: Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.

No	Notes from Juror	Adequate Response	Revised Page
1	Should Civic center integrate among thematic areas? What's PA contribution to your design problems?	The new design proposes a similar idea of integration through social condenser design approach instead of the previous parametric approach	66
2	Need to enhance timeline of development time by time.	With the change of typology and design approach the design timeline has been adjusted appropriately.	6
3	Need to focus on one typology instead of having too much	The typology has been fixated into one single typology which is a Community Center previously from a Civic Center which consolidated finance, government and community center	48

Table 6.2
Design brief response table to juror 2
Author (2026)

Supervisor: Ir. Wiryono Raharjo, M.Arch., Ph.D.

No	Notes from Supervisor	Adequate Response	Revised Page
1	Judul perlu mengantisipasi pemahaman lebih dalam terhadap "jargon arsitektural" seperti "Polycentric Growth" dan "Symoptic Design Approach" dan konsekuensinya terhadap desain lingkungan binaan. Judul yang di atas juga berbda dari judul yang ditulis di dile proposal.	The title from the previous proposal "Design of an Urban Growth Center in Batam for Polycentric Urban Growth through Synoptic Design Approach" is now chaged into "Design of a Community Center in Batam Center through Social Condenser Design Approach"	6
2	Gagasan akan akan Urban Growth Center cukup relevan dengan situasi di Batam, namun perlu ada fokus melihat problematika di ranah bangunan karena penekanan FADS adalah pada perancangan bangunan.	The focus and project scope of an "Urban Growth Center" is now changed into a single building typology which is a community center	48

Table 6.3
Design brief response table to supervisor
Author (2026)

Comprehensive Review

Juror 1: Prof. Dr.-Ing. Ir. Ar. Ilya Fadjar Maharika, MA., IAI.

No	Notes from Juror	Adequate Response	Revised Page
1	Design needs to be improved in the context of "urban economy" vs "urban social aspect"	The design foregrounds the urban social dimension, examining how industrial-led urban growth contributes to declining livability and the gradual weakening of social cohesion. These interrelated conditions form the core problem that the project seeks to address through architectural intervention.	23, 26
2	The garden is tucked behind the building making it secluded, consider it again if the design wants to show integration and uniqueness	The garden, now redefined as the open lawn, has been repositioned to the front of the site, replacing the previously designated plaza. This adjustment enhances visibility from the primary frontage and strengthens the building’s engagement with the surrounding urban context.	111, 112
3	The term third place isnt necessarily third place if the workers are working since it is their first place	As a response to this, the term third place is discarded as the author concedes the fact that it may be contradicting with the concept of the third place	6

Table 6.4
Comprehensive review response table to juror 1

Author (2026)

Juror 2: Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.

No	Notes from Juror	Adequate Response	Revised Page
1	Term of 'integrate' and 'connection' need to more explore because very limited narration in your report. Those are need to more explore related with your problem challenges.	The concepts of integration and connectivity are now redefined within the framework of a social condenser-based community center. In the final design iteration, diverse programs—including a library, fitness center, primary care unit, art gallery, hawker center, and amphitheater—are consolidated within a single building complex and interconnected through a central social spine. This spatial strategy strengthens programmatic adjacency, encourages incidental interaction among users, and reinforces the building’s role as a civic catalyst.	66, 68, 100, 101
2	Central accommodation not explore yet related with your third space	The idea of third place has been abandoned due to the contradiction in the previous version of the report and hence there are no central accomodation made	6

Juror 2: Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.

No	Notes from Juror	Adequate Response	Revised Page
3	There is no study about identity and attraction as your mention in design problems. What relation with your design challenges?	A study addressing the issues of identity and attraction has been incorporated into the final report. The underlying premise is that social cohesion can be strengthened through the establishment of a shared collective identity. In this context, the community center functions as a social condenser that embodies and facilitates this shared identity. This is achieved by designing an architectural form that is detached from specific cultural biases and instead positions itself within a neutral, middle-ground identity. Furthermore, the operational scheme and facility programming are curated based on activities most frequently undertaken by the public, ensuring that the building reflects everyday social practices rather than representing a singular cultural narrative.	72
4	Need to explore local third place, instead of first and second places to argue your ideas.	The idea of third place has been abandoned due to the contradiction in the previous version of the report	6
5	Visualization and infographics were very less in presentation	Relevant graphics and infographics has been added into the final design report	1-112
6	Need to declare briefly your design concepts, design criteria, and design guidelines and what schematic design needed to explore your ideas.	The design concepts are a derived from the social condenser design approach which if applied into the architectural design are: • Spatial organization that delineates unpredicted encounters or promote chance encounters • Including “Multi Zones” that allow for fluid transformation between programs • Combining contrasting functions to bring different demographics together • Creating communal amenities • Encouraging participatory and community events through spatial generosity and the design to should position itself as a connector in its urban context, avoiding itself as an isolated entity Design criteria are then made by connecting those concept and then adjusting it to the existing design problems which then results in aspects like program diversity, shared boundary length between program, convergence points and corridors, transformable and flexible spaces, operational durability for extended hours, integration with the surrounding urban context and middle ground architectural identity. Finally those design criteria are then translated into measurable design guidelines	64-72
7	Need to consider again the term of third place	As a response to this, the term third place is discarded as the author concedes the fact that it may be contradicting with the concept of the third place	6

Table 6.5
Comprehensive review response table to juror 2
Author (2026)

Supervisor: Ir. Wiryono Raharjo, M.Arch., Ph.D.

No	Notes from Supervisor	Adequate Response	Revised Page
1	Implikasi penggunaan teori "Social Condenser" pada rancangan bangunan perlu dikuatkan lagi.	An extensive research process informed the project, allowing various conceptual strategies to be examined through the lens of the social condenser approach. Following critical evaluation, the most contextually and theoretically aligned concept was developed and applied in the final design.	46, 66-73

Table 6.6
Comprehensive review response table to supervisor
Author (2026)

Final Defense - Design Development

Juror 1: Prof. Dr.-Ing. Ir. Ar. Ilya Fadjar Maharika, MA., IAI.

No	Notes from Juror	Adequate Response	Revised Page
1	Need to be more explicit on how the social condenser is being applied, such as 24 hours "clash of activities - cross social groups"	The social spine and pathway of the building operates on a 24 hours basis with adjacent facilities or program operate beyond the standard operating hours hence the social collision from cross social groups may happen in that way	107
2	Nedd to "add" schematic on how the mezo level being designed (such as spatial connections fro other blocs etc)	A diagram is made to show the building's connection to the surrounding neighborhoods on a 700m radius	106
3	How is the utilization and the operation scheme of the basement parking? is it 24 hours?	The basement parking runs on a 24 hours scheme to generate revenue for operation and maintenance and also as a way to respond to the activities happening in a micro level	108

Table 6.7
Final defense response table to juror 1

Author (2026)

Juror 2: Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.

No	Notes from Juror	Adequate Response	Revised Page
1	Design report need to improve as a guideline of SADA, and strongly recommend to check and recheck consistency of start form design problem until the final design. Focus on building design process and results based on architectural problems. Need to put and improve design challenges, design criteria, design guideline and design concepts. Check, recheck and adequate response all notes from seminar of DB and Compre.	As a response to this, the design concept, criteria and guideline are added as follows: the design concepts are derived from the social condenser design approach. When translated into architectural terms, this approach emphasizes: • Spatial organization that enables unpredicted or chance encounters • The inclusion of “multi-zones” that allow fluid transformation between programs • The combination of contrasting functions to bring different demographics into proximity • The provision of communal amenities • The encouragement of participatory and community-oriented events through spatial generosity • The positioning of the building as an urban connector rather than an isolated object Based on these conceptual foundations, specific design criteria were formulated by aligning the social condenser principles with the identified design problems. This synthesis resulted in key architectural aspects, including program diversity, increased shared boundary length between programs, the incorporation of convergence points and widened corridors, transformable and flexible spaces, operational durability to accommodate extended hours, integration with the surrounding urban context, and the establishment of a middle-ground architectural identity. Finally, these design criteria were translated into measurable and operational design guidelines, ensuring that the theoretical framework was systematically embedded within the spatial, formal, and programmatic decisions of the project. To comply with the FADS design report standard, tweaks has been made and additionally consistency of the topic has been aligned and adjusted due to changes from the design brief up to comprehensive phase	64-73

Juror 2: Dr. Ar. Yulianto Purwono Prihatmaji, ST., M.T., IPM., IAI.

No	Notes from Juror	Adequate Response	Revised Page
2	Generator room door is too small	Previously, access to the generator room is too small following the industry standard of a generator size of 3,32 x 1,86 x 2,36m (100 KVA). Hence, an additional 4m wide corridor is made leading to the generator room and the access door is changed into a sliding 3m wide door	109
3	RHS (referring to "Section C") is too big	Previously, the rafters shown in Section C for the hawker center structure were oversized, resulting in structural inefficiency and unnecessary material use. The original IWF 500 × 200 mm section has therefore been optimized to an IWF 350 × 250 mm section. This revision reduces structural weight and improves material efficiency while maintaining adequate strength and safety performance in accordance with the required span and loading conditions.	110

Table 6.8
Final defense response table to juror 2
Author (2026)

Supervisor: Ir. Wiryono Raharjo, M.Arch., Ph.D.

No	Notes from Supervisor	Adequate Response	Revised Page
1	Create a visualisation of temporary architecture within that area with semi fixed architecture element (e.g. tent, booth, stalls, etc)	A diagrammatic representation and illustrative visualization have been developed to demonstrate the utilization of the open lawn through semi-fixed architectural installations. In addition, a curated list of potential activities has been provided to clarify the range of programs the space can accommodate, highlighting its flexibility and capacity to support both everyday use and large-scale community events.	111-112

Table 6.9
Final defense response table to supervisor
Author (2026)

Appendices



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SURAT KETERANGAN HASIL CEK PLAGIASI
Nomor: 2883650505/Perpus./10/Dir.Perpus/II/2026

Bismillaahirrahmaanirrahiim

Assalamualaikum Wr. Wb.

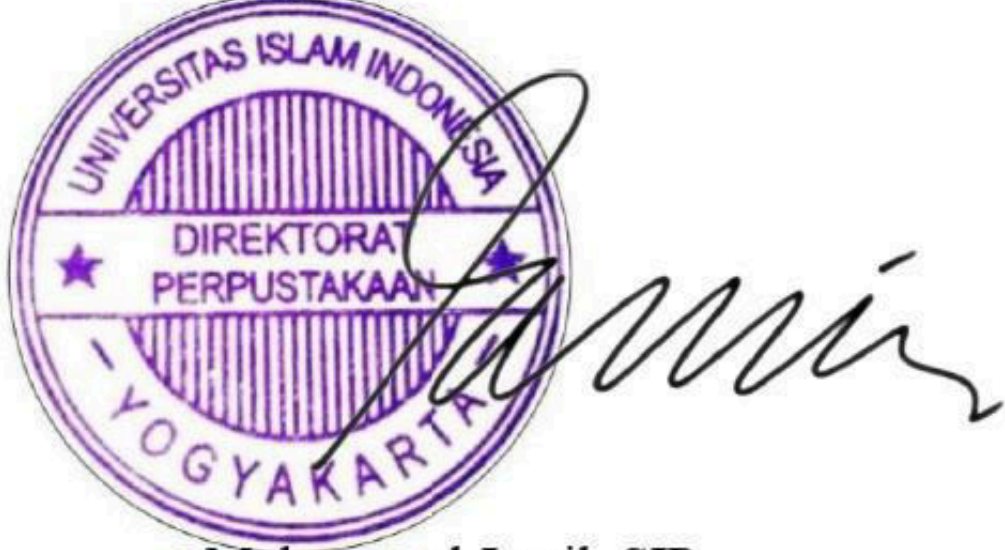
Dengan ini, menerangkan Bahwa:
Nama : Mohd Rhafie Nadhif Nureski
Nomor Mahasiswa : 21512164
Pembimbing : Ir. Wiryono Raharjo, M.Arch., Ph.D
Fakultas / Prodi : Teknik Sipil dan Perencanaan/ Arsitektur
Judul Karya Ilmiah : Design of a Community Center in Batam Center Through Social
Condenser Design Approach

Karya ilmiah yang bersangkutan di atas telah melalui proses cek plagiasi menggunakan **Turnitin** dengan hasil kemiripan (*similarity*) sebesar **2 (Dua) %**.

Demikian Surat Keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Wassalamualaikum Wr. Wb.

Yogyakarta, 2/20/2026
Direktur



Muhammad Jamil, SIP.

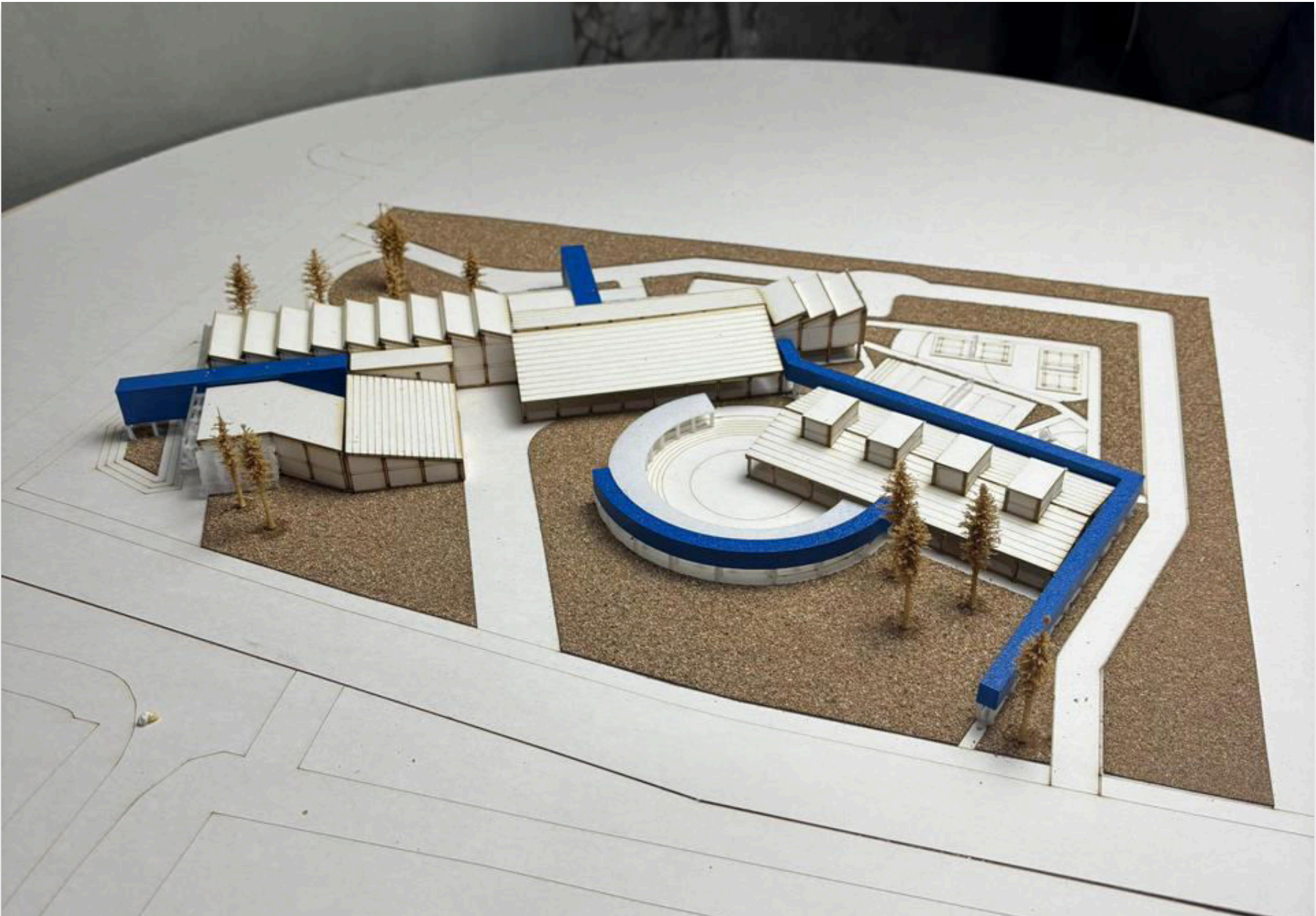
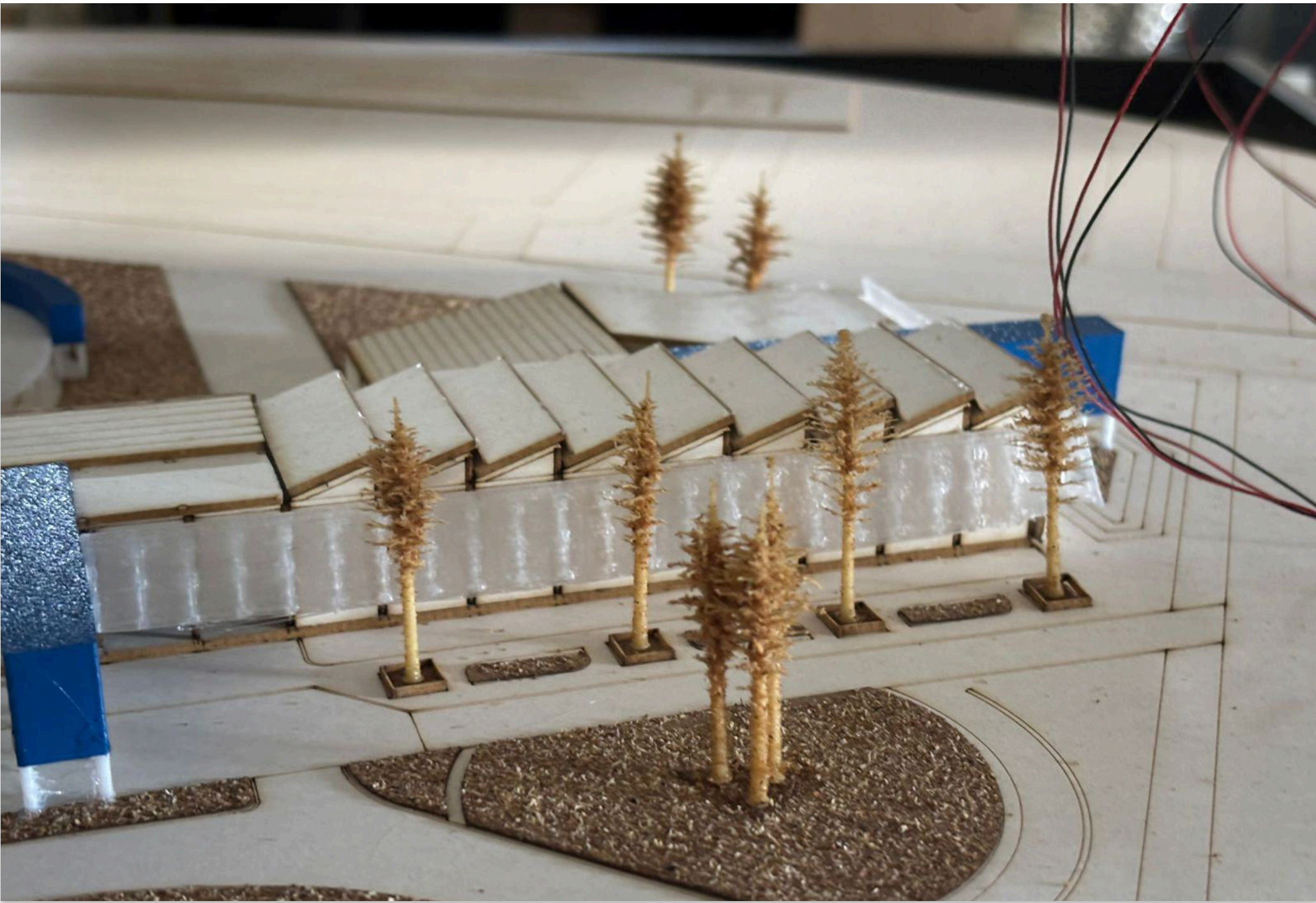
APPENDICES

Design Development Drawings



Scan to view drawings

Physical Model



References

Aditya. (2017, July). Manajemen BCS Mall minta maaf ke penumpang taksi online yang syok. Batamnews.co.id. www.batamnews.co.id/berita-24380-manajemen-bcs-mall-minta-maaf-ke-penumpang-taksi-online-yang-syok.ht

Archdaily. (2019, January 11). Punggol Neighbourhood and Polyclinic / Serie Architects + Multiply Architects. Retrieved from ArchDaily website: <https://www.archdaily.com/909142/punggol-neighbourhood-and-polyclinic-serie-architects-plus-multiply-architects>

Archdaily. (2019, January 16). LocHal Library / CIVIC architects + Braaksma & Roos architectenbureau + Inside Outside + Mecanoo. Retrieved from ArchDaily website: <https://www.archdaily.com/909540/lochal-library-mecanoo-plus-civic-architects-plus-braaksma-and-roos-architectenbureau>

Aditya. (2019). Batamliciouz bazar vol 4: Kuliner kaki lima diserbu wisman Singapura. Batamnews.co.id. www.batamnews.co.id/berita-51613-batamliciouz-bazar-vol-4-kuliner-kaki-lima-diserbu-wisman-singapura.html

AG, meteoblue. (2025). Simulated historical climate & weather data for Batam. Meteoblue. www.meteoblue.com/en/weather/historyclimate/climatemodelled/batam_indonesia_1649884

Badan Pusat Statistik. (n.d.). Persentase penduduk usia 25 tahun ke atas dengan pendidikan SMA ke atas menurut jenis kelamin (persen). <https://www.bps.go.id/id/statistics-table/2/MjE5OSMy/persentasependuduk-usia-25-tahun-keatas-dengan-pendidikan-sma-ke-atas-menurut-jeniskelamin--persen->

Badan Pusat Statistik Kota Batam. (n.d.). Penduduk usia 15 tahun ke atas yang bekerja menurut jam kerja seluruhnya dan jenis kelamin. <https://batamkota.bps.go.id>

Badan Pusat Statistik Kota Batam. (n.d.). Penduduk usia 15 tahun ke atas yang bekerja menurut lapangan usaha dan pendidikan terakhir yang ditamatkan. <https://batamkota.bps.go.id>

Badan Pusat Statistik Kota Batam. (n.d.). Population aged 15 years and over who worked by industry and sex. <https://batamkota.bps.go.id>

Badan Pusat Statistik Kota Batam. (n.d.). Population percentage by characteristics, expenditures, and age group. <https://batamkota.bps.go.id>

Badan Pusat Statistik Kota Batam. (2022). Jumlah penduduk menurut kelompok umur dan jenis kelamin di Kota Batam, 2022. <https://batamkota.bps.go.id>

Batam, B. (2021, November 9). History of Batam. BP Batam. <https://bpbatam.go.id>

batampos. (2025, April 12). Hampir 20 ribu pendatang masuk Batam hingga awal April 2025. Batampos.co.id.

BP Batam. (2023, October 27). Ragam budaya. <https://bpbatam.go.id>

DP Architects. (2025, August 4). Bukit Canberra - DP Architects. Retrieved from DP Architects website: <https://www.dpa.com.sg/projects/bukit-canberra/>

Fians Dotid. (2023, October 13). Gereja Katolik St. Petrus: Harga tiket, foto, lokasi, fasilitas dan spot. Tempatwisata.pro

Gunawan, C. (2025, October 14). Pasar kerja Batam serap 10 ribu pencari kerja. Gokepri.

Hasyyati, A. Y., Prianto, E., & Suprapti, A. (2012). Community center di BSD City. IMAJI, 1(2), 147–156. <https://ejournal3.undip.ac.id/index.php/imaji/article/view/11512>

Humas BP Batam. (2024, December 30). Capaian tahun 2024, BP Batam sukses genjot nilai investasi dan pertumbuhan ekonomi daerah. <https://bpbatam.go.id>

Indonesia.travel. (2026). Pura Agung Amerta Bhuana yang megah di Batam.

Kontributor Proyek Wikimedia. (2022). File: Moisei Ginzburg.jpg. Wikimedia Commons.

Kontributor proyek Wikimedia. “Daftar Pusat Perbelanjaan Di Indonesia.” Wikipedia.org, Wikimedia Foundation, Inc., 18 Aug. 2007, id.wikipedia.org/wiki/Daftar_pusat_perbelanjaan_di_Indonesia.

References

Murawski, Michał, and Jane Rendell. “The Social Condenser: A Century of Revolution through Architecture, 1917–2017.” *The Journal of Architecture*, vol. 22, no. 3, 3 Apr. 2017, pp. 369–371, <https://doi.org/10.1080/13602365.2017.1326680>. Accessed 21 Oct. 2019.

OECD. (2024). *Society at a Glance 2024: OECD Social Indicators*. OECD Publishing, Paris. <https://doi.org/10.1787/918d8db3-en>

Pemerintah Kota Batam. (2025). *Sejarah Kota Batam*. <https://batam.go.id>

Rengga Yuliandra. (2024, June 9). *Revitalisasi Masjid Agung Batam Center dijadwalkan rampung akhir Agustus*. Batam Pos.

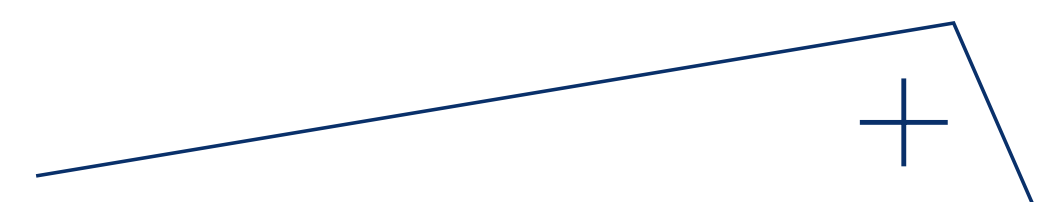
Teo, C. (2025). *A2 food court @ Batam Island in Indonesia*. Blogspot. <https://cavinteo.blogspot.com/2025/05/a2-food-court-batam-island-in-indonesia.html>

Teguh Prihatna. (2025). *Bazar thrifting di Batam*. ANTARA Foto. <https://www.antarafoto.com/id/view/2517085/bazar-thrifting-di-batam>

https://www.tripadvisor.co.id/LocationPhotoDirectLink-g297717-d8036276-i314223444-Batam_Private_Driver-Batam_Riau_Archipelago_Riau_Islands_Province.html

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